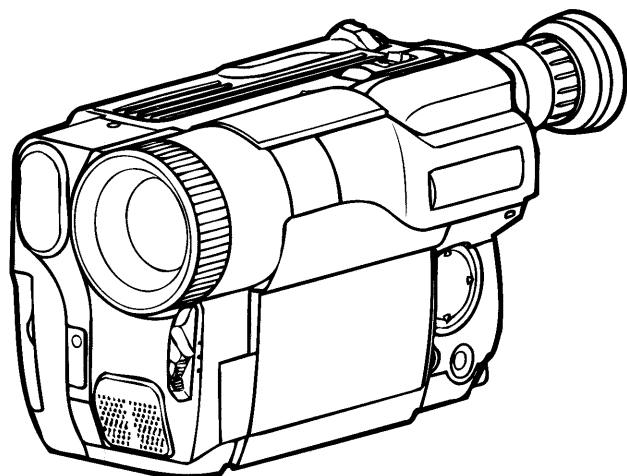


HITACHI

SERVICE MANUAL



TK

No.6908E

VM-H765LA/H665LA
VM-E565LA/E563LA
AC Adapter **VM-ACE5A**

UH MECHANISM

■ **When Servicing the Mechanism:**

This camera/recorder uses a UH mechanism.
When servicing the UH mechanism, refer to the following service manuals:

Item	Manuals to be referred to
Disassembly	UH Mechanism (No. 6811E)
Mechanical Adjustment	UH Mechanism Supplement (No. 6811E-1)
Maintenance/Inspection Procedure	UH mechanism (No. 6811E)
Exploded View	Chapter 4 in this manual



SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

8mm VIDEO CAMERA/RECORDER

December 1999

Digital Media Products Division, Tokai

CAUTION (COLOR LCD)

LCD display; the liquid crystal display (LCD) panel is made by highly precise technology. More than 99.99% of its picture elements (pixels) are effective, but some (less than 0.01%) may appear as colored bright dots. This mode not indicate a fault as the LCD panel stretches the limits of current technology.

CAUTION (CRT EVF)

Be careful of the section painted in white on the electronic viewfinder circuit board as it generates a high voltage.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts have special safety-related characteristics. These are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for a higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual. Electrical components having such features are identified by marking with a $\triangle$ on the schematics and the parts list in this Service Manual. The use of a substitute replacement component which does not have the same safety characteristics as the HITACHI recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards. Product safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current HITACHI Service Manual. A subscription to, or additional copies for, HITACHI Service Manual may be obtained at a nominal charge from HITACHI SALES CORPORATION.

X-RAY RADIATION

The primary source of X-ray radiation in this viewfinder is the picture tube. The tube used in this viewfinder is specially constructed to limit X-ray radiation emission. For continued X-ray radiation protection, the replacement tube must be same type as the original, Hitachi approved one.

How to discriminate the "TYPE" identifications in the manual

The parts and circuits are identified by "TYPE" in this manual to discriminate the differences between models. The TYPE numbers are the same as the model numbers. The table below shows how to read the type identifications.

TYPE identification	Model name	TYPE identification	Model name
TYPE 765	VM-H765LA	TYPE 565	VM-E565LA
TYPE 665	VM-H665LA	TYPE 563	VM-E563LA
TYPE 660	Not used	TYPE 368	Not used
TYPE 568	Not used	TYPE 360	Not used

How to discriminate the "Model" identifications in electric circuit adjustment in the manual.

If the adjustment values (input data) vary depending on the model, they will be individually described using "MODEL" indications. The following shows the relationship between the "MODEL" indications and model names:

MODEL identification	Model name
Model HA	VM-H765LA
Model EA	VM-H665LA VM-E565LA VM-E563LA
Model HE	Not used
Model EE	Not used

Notes When Using Service Manual

The following shows the contents to be noted when using service manual:

1. Value units used in parts list

Certain symbols are indicated below for value units of resistors, capacitors and coils in parts list. When you read them note the following regular indications:

Parts	Indication in list	Regular indication
Resistor	KOHM	k Ω
Capacitor	UF	μ F
	PF	pF
Coil	UH	μ H
	MH	mH

2. Values in schematic diagrams

The values, dielectric strength (power capacitance) and tolerances of the resistors (excluding variable resistors) and capacitors are indicated in the schematic diagrams using abbreviations.

[Resistors]

Item	Indication
Value	No indication Ω
	K k Ω
	M M Ω
Tolerance	No indication $\pm 5\%$ (All tolerances other than $\pm 5\%$ are indicated in schematic diagrams)
Power capacitance	No indication 1/8W (1/16W for leadless resistors without indication) All capacitances other than the above are indicated in schematic diagrams.

[Capacitors]

Item	Indication
Value	No indication μ F
	P pF
Dielectric strength	No indication 50V (All dielectric strengths other than 50V are indicated in schematic diagrams)

[Coils]

Item	Indication
Value	μ μ H
	m mH

3. Identifications of sides A/B in circuit board diagrams

- 1) Board having a pattern on one side and parts on both sides.

Side A: Shows discrete parts, viewed from the pattern side.

Side B: Shows leadless parts, viewed from the pattern side.

- 2) Board having patterns on both sides and parts on both sides.

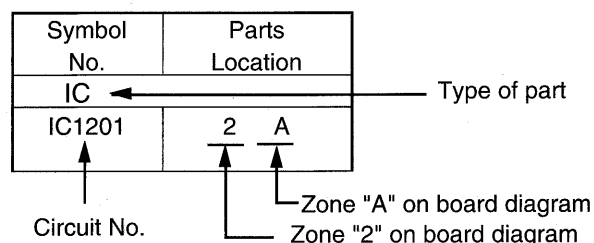
Side A: Shows parts and patterns which can be seen when the case is opened.

Side B: Shows parts and the pattern on the back of side A.

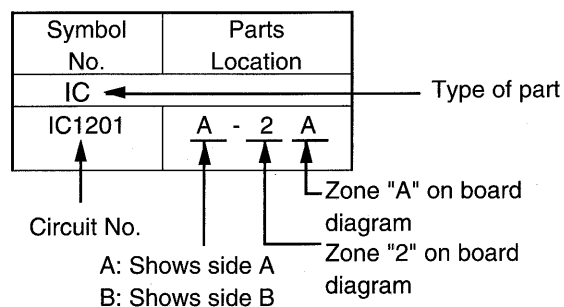
4. Table for indexing locations of parts

This table shows locations of each part on circuit board diagrams. The locations are indicated using the guide scales on the external lines of diagrams.

- 1) One diagram indicated for each board



- 2) Two diagrams indicated for each board



C O N T E N T S

CHAPTER 1 GENERAL INFORMATION

SPECIFICATIONS	E1-1
COMPARISON OF FEATURES	E1-2
COMPARISON OF MAIN CONTROL ICs	E1-3
JIGS AND TAPES FOR SERVICE	E1-4
HOW TO USE THE	
EXTENSION CABLES AND JIGS	E1-5
SERVICE POSITION	E1-5
SERVICE MANUAL ABBREVIATION LIST	E1-6
EXTRACT FROM THE INSTRUCTION MANUAL	E1-8

CHAPTER 2 DISASSEMBLY

1. BEFORE STARTING DISASSEMBLY	E2-1
1.1 Disassembly Procedure	E2-1
2. CASES AND CIRCUIT BOARDS REMOVAL	E2-2
2.1 Jack Cover, Front Cover Assembly, Lens Cover	E2-2
2.2 PSW Circuit Board, Microphone Unit, DC Light, Front Cover	E2-2
2.3 LCD Case-U, LCD Block, Cassette Lid, Top Cover	E2-3
2.4 L-Case Assembly, R-Case Assembly	E2-4
2.5 EVF Assembly, Speaker, CON Circuit Board, Fulcrum, L-Case	E2-5
2.6 Camera Chassis Assembly, VCR Chassis Assembly, Jack Unit, Rear Cover, Power Terminal Unit	E2-6
2.7 VCA Circuit Board, Mechanism Frame, UH Mechanism	E2-7
2.8 Hand Strap, TW/PW Switch, R-Case	E2-7
2.9 LCD Circuit Board, Back Light, LCD Module, LCD Case-B	E2-8
2.10 EVF Case-R, EVF Case-L, Eye Piece	E2-8
3. HOW TO OPERATE THE MECHANISM MANUALLY	E2-9

CHAPTER 3 ELECTRIC CIRCUIT ADJUSTMENT

1. CONNECTION FOR ADJUSTMENT	E3-1
1.1 Before Starting Adjustment	E3-1
2. CAMERA SECTION ADJUSTMENT	E3-2
2.1 Test Equipment Necessary for Adjustment	E3-2
2.2 List of Charts for Camera Adjustment	E3-2
2.3 Adjustment Conditions	E3-2
2.4 Preset Position of Switches and Controls During Adjustment	E3-2
2.5 Check After Replacing Major Components in the Camera Section	E3-3
2.6 Adjustment Procedure	E3-3
2.7 Color LCD Monitor Adjustment	E3-9
3. VCR SECTION ADJUSTMENT	E3-10
3.1 Test Equipment and Alignment Tapes Necessary for Adjustment	E3-10
3.2 Adjustment Conditions	E3-10
3.3 Preset Position of Switches and Controls During Adjustment	E3-10
3.4 Check After Replacing Major Components in the VCR Section	E3-10
3.5 System Control/Servo Circuits Adjustment	E3-10
4. ERROR MESSAGE	E3-12
4.1 Camera Digital Adjustment	E3-12
4.2 Autofocus Adjustment	E3-13
4.3 Spot Noise Adjustment	E3-13
4.4 VCR Adjustment	E3-14
5. TROUBLESHOOTING OF AUTOFOCUS	E3-15

CHAPTER 4 EXPLODED VIEWS

CABINET (1)	4-1
CABINET (2)	4-2
UH MECHANISM	4-3
ACCESSORIES	4-4

CHAPTER 5 REPLACEMENT PARTS LIST

MECHANICAL PARTS LIST	5-1
ACCESSORIES	5-1
ELECTRICAL PARTS LIST	5-2

CHAPTER 6 SCHEMATIC AND CIRCUIT BOARD AND BLOCK DIAGRAMS/ MICROPROCESSOR PIN FUNCTION TABLES

INTERNAL WIRING DIAGRAM	6-1
<i>SCHEMATIC/CIRCUIT BOARD</i>	
SENSOR/GYRO [SE]	6-3 /6-33, 35
CAMERA PROCESS [VCA]	6-5 /6-37, 43
SYSTEM CONTROL [VCA]	6-7 /6-37, 43
MECHA. STATE SW/MECHA. SENSOR	6-9 / ----
POWER SW [PSW]	6-10 /6-33, 35
SERVO [VCA]	6-11 /6-37, 43
AUDIO -STEREO- [VCA]	6-13 /6-37, 43
AUDIO -MONAURAL- [VCA]	6-15 /6-37, 43
REGULATOR [VCA]	6-17 /6-37, 43
VIDEO PROCESS [VCA]	6-21 /6-37, 43
CHARGE [VCA]	6-24 /6-37, 43
CONTROL [CON]	6-25 /6-33, 35
LCD DRIVE [LCD]	6-27 / 6-31
IC BLOCK DIAGRAM	6-29
DIFFERENCE TABLE	
For SE and CON circuit boards	6-32
For VCA circuit board	6-39, 41
IDENTIFICATION OF PARTS LOCATION	
For VCA circuit board	6-45
For CON and LCD circuit board	6-47
WAVEFORMS	
SENSOR	6-3
SYSTEM CONTROL	6-9
SERVO	6-11
VIDEO PROCESS	6-19
BLOCK DIAGRAMS	
1. OVERALL	6-49
2. MAIN CONTROL	6-51
3. SERVO	6-53
4. CAMERA & VIDEO PROCESS	6-55
5. AUDIO -STEREO-	6-57
6. AUDIO -MONAURAL-	6-59
7. POWER	6-61
MICROPROCESSOR PIN FUNCTION TABLE	
1. Digital Microprocessor (IC1104: D-μP)	6-63
2. System Control Microprocessor (IC901: S-μP)	6-65

CHAPTER 7 APPENDIX

1. SELF-DIAGNOSTIC FUNCTION	7-1
2. DEMONSTRATION (DEMO) MODE	7-6

CHAPTER 8 VM-ACE5A (AC ADAPTER)

EXPLODED VIEW & REPLACEMENT PARTS LIST	8-1
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SPECIFICATIONS**General Specifications**

Power requirements	7.2V DC
Power consumption	VM-H765LA: 3.6W (when recording/LCD monitor OFF) 4.1W (when recording/LCD monitor ON) VM-H665LA: 3.5W (when recording/LCD monitor OFF) 4.0W (when recording/LCD monitor ON) VM-E565LA: 3.4W (when recording/LCD monitor OFF) 3.8W (when recording/LCD monitor ON) VM-E563LA: 3.4W (when recording/LCD monitor OFF) 3.8W (when recording/LCD monitor ON)
Dimensions	4-3/8" W × 4-3/8" H × 7-15/16" D (111.5 mm × 111.5 mm × 202 mm)
Weight	1.84 lds (approx. 836g) without battery pack and cassette
Operating temperature	32°F to 104°F (0°C to 40°C)
Storage temperature	-4°F to 140°F (-20°C to 60°C)

Video Recorder Specifications

Format	8 mm
Record/playback	Two video record/playback heads
Video signal	EIA standard NTSC color
Tape speed	14.3 mm/sec
Video output	1.0 Vp-p, 75 ohm
Audio output	-7.8 dBs (316 mVrms)
Fast forward/rewind time	Less than 8 minutes with P6-120 cassette

Camera Specifications

Scanning	525 lines/60 fields/30 frames
Required minimum illumination	VM-H765LA: 0.5 lx VM-H665LA: 0.3 lx VM-E565LA: 0.3 lx VM-E563LA: 0.3 lx
Pickup device	1/4" C.C.D.
Lens	F1.6 to 3.8 (4 to 88 mm) 22:1 power zoom lens with auto focus and auto iris functions
Lens diameter	46 mm

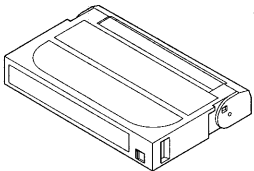
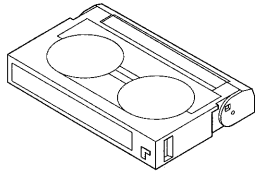
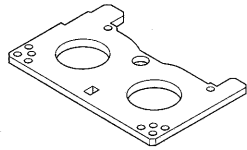
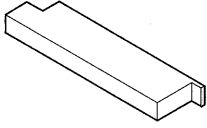
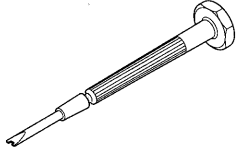
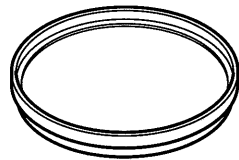
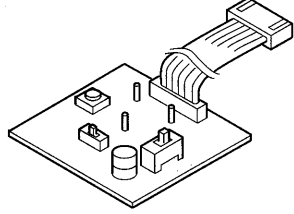
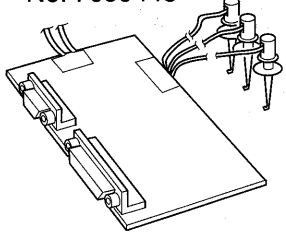
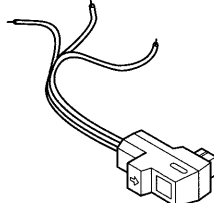
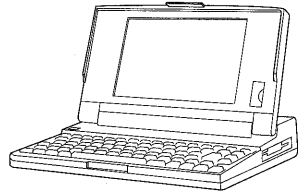
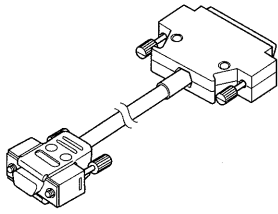
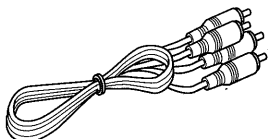
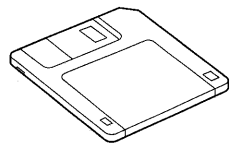
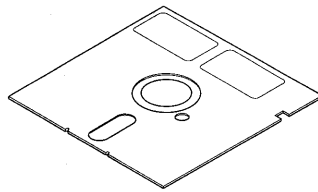
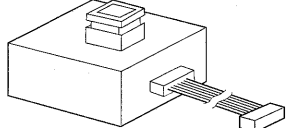
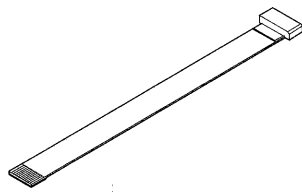
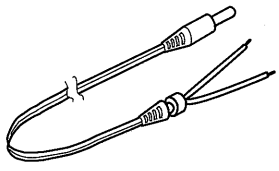
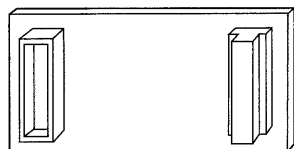
COMPARISON OF FEATURES

ITEM		VM-H755LA/H655LA/E555LA	VM-H765LA/H665LA VM-E565LA/E563LA
GENERAL	Power Requirements	7.2V DC	
	Power Consumption (when recording/LCD monitor ON)	4.6W [VM-H755LA/H655LA] 4.3W [VM-E555LA]	4.1W [VM-H765LA] 4.0W [VM-H665LA] 3.8W [VM-E565LA/E563LA]
	Dimensions (W × H × D)	4-11/16" × 4-1/16" × 7-1/8" (118.5 mm × 102.5 mm × 181 mm)	4-3/8" × 4-3/8" × 7-15/16" (111.5 mm × 111.5 mm × 202 mm)
	Weight	1.94 lds (Approx. 880g) [VM-H755LA/H655LA] 1.87 lds (Approx. 850g) [VM-E555LA]	1.84 lds (Approx. 836g)
VIDEO	Format	8mm (Hi-8) [VM-H755LA/H655LA] 8mm [VM-E555LA]	8mm (Hi-8) [VM-H765LA/H665LA] 8mm [VM-E565LA/E563LA]
	Record/Playback System	Two video record/playback heads	
	Video Signal	EIA Standard NTSC color	
	Tape Speed	14.3mm/sec	
	F.F/Rew Time	Less than 8 minutes with P6-120 cassette	
	Head Wheel	40 mm	
	Basic Chassis Type	UH	
CAMERA	Scanning	525 lines/60 fields/30 frame	
	Required Minimum Illumination	0.5 lux [VM-H755LA/E555LA] 0.3 lux [VM-H655LA]	0.5 lux [VM-H765LA/H665LA] 0.3 lux [VM-E565LA/E563LA]
	Camera Device	1/4" C.C.D	
	Lens Diameter	46 mm	
	Zoom Ratio	22 : 1 (4.0 - 88.0mm)	
	Aperture	F1.6 - 3.8	
	Zoom Speed	Adjustable speed	
	Electronic Viewfinder (EVF)	CRT (Black & White)	
FEATURES	Electrical Zoom Function	Yes [x 400 (22 × 12 × INST. ZOOM)]	Yes [x 500 (22 × 23)]
	INST. ZOOM Function	Yes (x 1.5)	No
	Autofocus System	Video AF System	
	Program AE (Shutter Speed)	Yes (Program AE only)	
	Selective Program AE	No	Yes [VM-H765LA/H665LA/E565LA] (AUTO, SPOTS, PORTRAIT, SPOTLIGHT, GAIN) No [VM-E563LA]
	AV Input Function	No	
	S-Connector Output	Yes [VM-H755LA/H655LA] No [VM-E555LA]	Yes [VM-H765LA/H665LA] No [VM-E565LA/E563LA]
	AV Dubbing	Using the remote control [VM-H755LA/E555LA] Using the edit remote control in the optional accessories [VM-H655LA]	Using the remote control
	Audio System & Microphone	Monaural	Stereo [VM-H765LA] Monaural [VM-H665LA/E565LA/E563LA]
	Multi Playback (PAL 60 Conversion)	Yes (Selective)	
	Digital Effect & Fade	Yes	
	Date Search	Yes	
	Tape Analyzer ATRS	No	Yes [VM-H765LA/H665LA] No [VM-E565LA/E563LA]
	TAPE+ Function	No	Yes [VM-H765LA/H665LA] No [VM-E565LA/E563LA]
	Electronic Image Stabilizer (EIS)	Picture element system [VM-H755LA] Electrical system [VM-H655LA/E555LA]	Picture element system
	LCD Display	2.5 inch	
	Internal DC Light	No	Yes [VM-H765LA/E565LA] No [VM-H665LA/E563LA]
	Internal Battery Charge	Yes	
ACCE-SSORY	AC Adapter/Charger	VM-ACE5A	
	Battery Pack	VM-BPL13	
	Remote Controller	VM-RME411A(R) [VM-H755LA/E555LA] No [VM-H655LA]	VM-RME611A

COMPARISON OF MAIN CONTROL ICs

ITEM		VM-H755LA/H655LA/E555LA	VM-H765LA/H665LA VM-E565LA/E563LA
CCD SENSOR & GYRO	CCD Sensor	ICX209AK-K [VM-H755LA] (IC1001) ICX206AK-K [Except for VM-H755LA] (IC1001)	MN37241FT [VM-H765LA] (IC1001) ICX206AK-K [Except for VM-H765LA] (IC1001)
	V-Move (Vertical Gyro)	ENC-03JA-03 (IC1401)	ENC-03JA-03 (IC1401)
	H-Move (Horizontal Gyro)	ENC-03JB-03 (IC1402)	ENC-03JB-03 (IC1402)
	Gyro Amp	NJM064V (IC1403)	NJU7018M (IC1403)
	Sensor Drive (Drive Pulse Generator)	μPD16510GR (IC1103)	μPD16510GR (IC0203)
VIDEO PROCESS & ATF	Video DSP (Digital Process)	HG73C012TE (IC1102) HG73C061TE (IC0201)	MB87L1550PMT2 (IC0201)
	ATF	μPC5023GS-122-E1 (IC0601)	
	LCD Process	IR3Y29AM (IC5301)	
	LCD D/A Conv.	M62352GP (IC5302)	
	LCD Pulse Gen.	LZ9GH18 (IC5601)	
	LCD OSC Cont.	NJM3414 AV (IC5602)	
	CDS/AGC & A/D Conv.	HD49323F (IC1101)	HD49323F (IC0202)
	VideoHead Switch	HA118189MPER (IC0101)	HA118189MPER (IC0101)
	Phase EQ/FM Peak	μPC5023GS-147 (IC0102)	Not provided
	V. RAM	MSM54V16258A50 (IC0202)	
	Sync Sepa.	BA7071F (IC0203)	
	Video Amp	μPC5023GS-153 (IC0204)	μPC5020GS-129 (IC0301)
	RGB Amp	Not provided	μPC5020GR-125-8J (IC0350)
CAMERA CONTROL & SYSTEM CONTROL	Digital μP (D-μP)	HD6432237M03TE (IC1104)	HD6432237M08TE (IC1104)
	EEPROM	X2509V-217 (IC1105)	AT25160 (IC1105)
	D/A Conv.	Not provided	MB88347PFV (IC1111)
	F Det./Iris Drive	μPC5023GS-147GJG (IC1201)	
	Zoom Motor/Focus Motor Driver	μPD16833AG3 (IC1301)	
	System Control μP (S-μP)	CXP87248A-153R (IC0901)	CXP87360-132R (IC0901)
	Back-up Det.	NJU7284EV (IC0902)	NJU7285BV (IC0902)
	Character Gen.	μPD6461GS-942-E1 (IC0904)	μPD6461GS-947-E1 (IC0904)
	Level Shift	SN74AHC126PW (IC0906)	Not provided
	IR Receiver	GP1U101X (IC0907)	GP1U101X (IC0701)
SERVO & POWER	Cylinder Motor Drive	LB1950V (IC0631)	
	Capstan Motor Drive	LB1991V (IC0651)	
	Loading Motor Drive	BA6417F (IC0671)	
	PWM	BA9735KV (IC0551)	BA9736KV (IC0551)
	5V Reg.	PQ20WZ51 (IC0553)	
	CHG Current Cont.	MM6564XFBF (IC0001)	
AUDIO	Audio Process	LA7458W (IC0401)	HA118193F [VM-H765LA] (IC0401) LA7458W [Except for VM-H765LA] (IC0401)
	Speaker Amp	Not provided	TDA7052AT [VM-H765LA] (IC0461S) Not provided [Except for VM-H765LA]
	Audio Matrix	Not provided	NJM2112V [VM-H765LA] (IC0471S) Not provided [Except for VM-H765LA]
EVF & LCD	EVF Video Amp/Vertical & Horizontal Deflection	HA118179F (IC2001)	In the EVF unit.
	LCD SWR.	TL5001CD (IC5401, IC5501)	TL5001CD (IC5501)
	LED Cont.	NJM2406F (IC5502)	Not provided

JIGS AND TAPES FOR SERVICE

1. Alignment Tape 20HSC-2: No. 7099231 	2. Cassette Torque Meter SRK-8T-132: No. 7099235 SRK-8T-112: No. 7099385 	3. Master Plane No.7099237 	4. Reel Disk Height Jig No. 7099238 
5. Special Driver No. 7099239 	6. C12 Light Balance Filter No. 7099369 	7. ATF-R Jig (*1,*2) No. 7099461 	8. DSP-R jig No. 7099448 
9. DSP AV Output Jig No. 7099456 	10. Personal Computer [Goods on the market] 	11. Personal Computer Cable RS-232C (9-pin or 25-pin) Straight Type Cable [Goods on the market] 	
12. AV Output Cable (*3) [Accessory] 	13. Adjustment Floppy Disk [New Jig] 3.5 inch: No. TP12111 5 inch: TP12112 		14. 8 - 20 Pin Extension Cable [New Jig] No. TS15411 
15. 4-Pin Extension Cable No.7069203 	16. ODC DC CORD No. TE13171 	17. 80-Pin Extension Board [New Jig] No. JP25461 	

Caution for jigs :

- *1. Always set SW3 on the ATF-R jig to ON.
- *2. The ATF jig (No.7099386) can also be used in place of ATF-R jig to adjust this model.
- *3. Either the monaural or stereo AV output cable can be used.

HOW TO USE THE EXTENSION CABLES AND JIGS

Name of Jig	Parts No.	How to Use
8 - 20 Pin Extention Cable	TS15411	Used for electrical adjustment. Connected between PG905 on the VCA circuit board and DSP Output Jig (20 pins). Refer to Fig. 1-1 on the page 3-1.
4-Pin Extension Cable	7069203	Installed between the VCA circuit board and mode switch (mechanism state switch).
ODC DC Cord	TE13171	Power supply cable for power shut off level (ODC) adjustment. Refer to Fig. 1-1 on the page 3-1. Positive: Black Negative: Black & White
80-Pin Extension Board	JP25461	Installed between the VCA circuit board and CON circuit board.

SERVICE POSITION

NOTE :

1. If the front cover assembly is connected to the VCA circuit board, the provided remote control can be used to operate the camera/recorder without connecting the CON circuit board.
2. The VCR block can be operated with the camera chassis assembly removed.

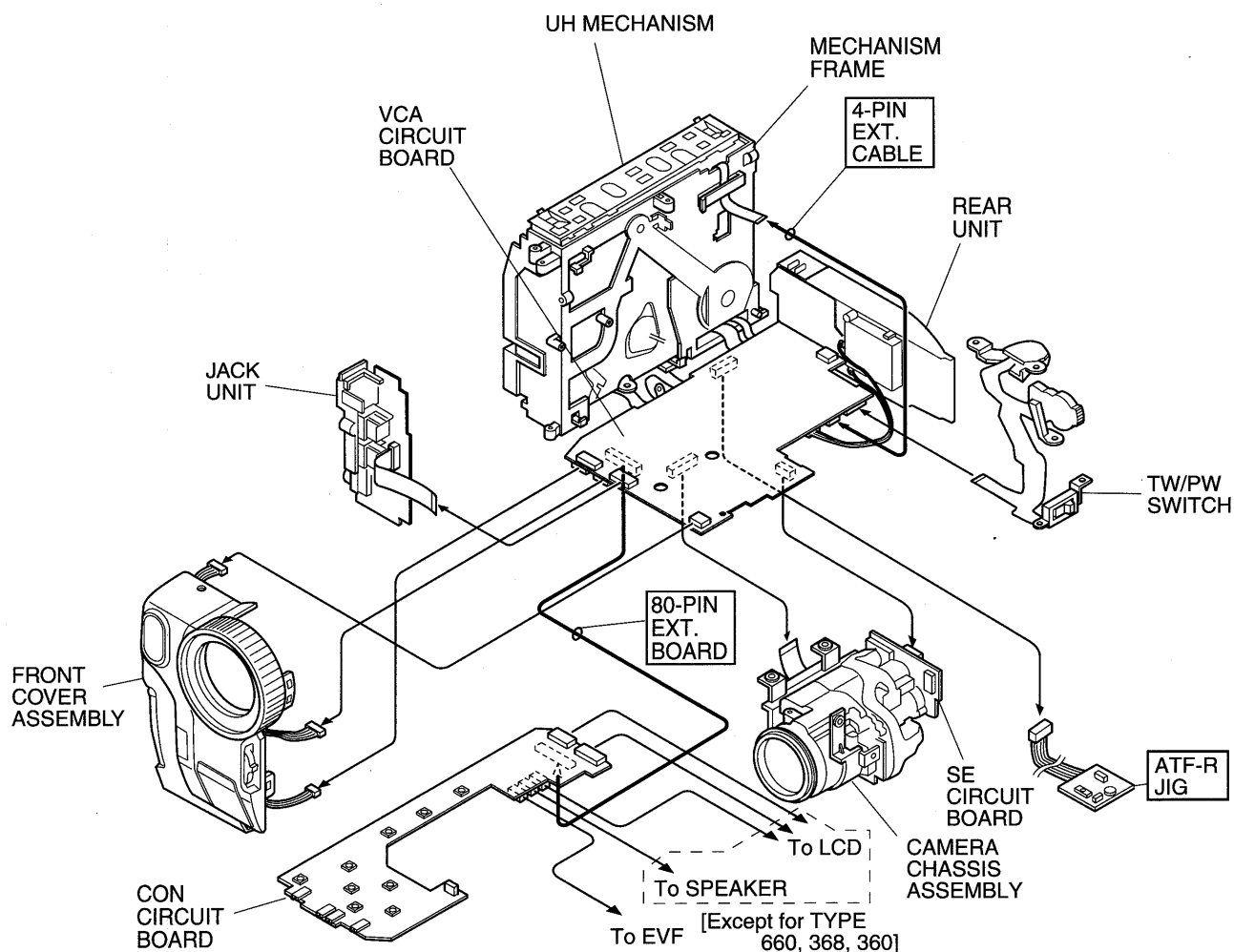


Fig.1-1 Extension Cable and Jig Connection Diagram

SERVICE MANUAL ABBREVIATION LIST

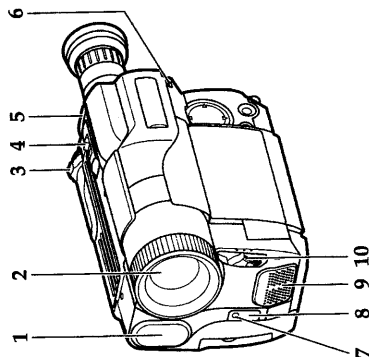
A	
ACC	Automatic Color Control
ADD	Adder
ADRS	Address
AF	Automatic focus (Autofocus)
AFC	Automatic Frequency Control
AGC	Automatic Gain Control
AGC KILLER	AGC Killer Voltage
AI	Automatic Intelligence
AIC	Automatic Iris Control
ALC	Automatic Level Control
AMP	Amplifier
APC	Automatic Phase Control
ASBL	Assemble (Phase Matching)
AUD.	Audio
AUX	Auxiliary
A/D	Analog-to-Digital Converter
A.DUB	Audio Dubbing
B	
B (BLU)	Color Signal Blue
BATT.	Battery
BF	Burst Flag
BG	Burst Gate or Back Ground
BGP	Burst Gate Pulse
BLK	Blanking
BPF	Bandpass Filter
BUF.	Buffer Amplifier
B-YL	Color Difference Signal B-YL
C	
C (CHROMA)	Chrominance Signal
CAM	Camera
CAPST.	Capstan
CARRI.	Carrier
CATV	Cable TV
C.BLK	Composite Blanking
CCD	Charge Coupled Device
CDS	Correlated Double Sampling
CG	Character Generator
C.FG (CFG)	Capstan Frequency Generator
C.FREE RUN	Capstan Free Run
CH (Ch or ch)	Channel
CHARA.	Character
CHD	Camera Horizontal Drive Pulse
C.MEMORY	Counter Memory
CNR	Chroma Noise Reducer
COM.	Common
COMPA.	Comparator
COMPE.	Compensator
COMP-EXP	Compressor-Expander
COMPO	Composite
CONT.	Control
CONV.	Converter
COUNT.	Counter
CP	CP
C.PAUSE	Camp Pulse
C/R	Capacitor/Resistor
C.RESET	Countor Reset or Camera Reset

C	
C.REVERSE	Count Reverse
CS	Communication Signal
CST	Cassette
C.SYNC	Composite Synchronizing Signal
CTL	Control Track Pulse (Control)
CYL	Cylinder
D	
D (Digital)	Digital
DA	Double Azimuth
D/A	Digital to Analog Converter
D-D	Direct Drive
DEEMPHA.	Deemphasis
DEF	Deflection
DEMOD.	Demodulator
DET	Detector
DIFF. AMP	Differential Amplifier
DISP.	Display
DL Delay Line	
DO	Dropout
DOC	Dropout Compensator
DSP	Digital Signal Processor
D/W	Dark/White
D.ZOOM (DZ)	Digital Zoom
E	
EAROM (EA-ROM)	Electrically Alterable Read Only Memory
EEPROM (EEP-ROM)	Electrical Erasable Proframmed
E-E	Electronic-to-Electronic
EIS (E.I.S.)	Electronic Image Stabilizer
EMPHA. (EMPH)	Emphasis
EQ	Equalizer
ESS	Supply End Sensor
EST	Take-up End Sensor
EVF	Electronic Viewfinder
EXT.	External
E.ZOOM	Electronic Zoom
F	
F.ADV	Frame Advance
F/V	Frequency-to-Voltage Converter
FB	Feed back
FE	Full Erase
FF (F/F)	Flip Flop
F.FWD	Fast Forward
FG	Frequency Generator
FM	Frequency Modulation
FREQ.	Frequency
fsc	Sub Carrier Frequency
FWD	Forward
G	
GEN.	Generator
GND	Ground
H	
H (HORIZ.)	Horizontal
HBHi-Band	

H	
HBF	Horizontal Burst Flag
HD	Horizontal Drive
Hi-Fi	High Fidelity
HPF	High-pass Filter
I	
IF	Intermediate Frequency
INDI.	Indicator
INST.	Instant
INT.	Internal
INV.	Inverter
I/O	In/Out (Input/Output)
IR	Infrared Rays
L	
LB	Low-Band
LCD	Liquid Crystal Display
LIN.	Linear
LM	Loading Motor
LNC	Line Noise Canceller
LOG	Logarithm
LP	Long Play
LPF	Low-pass Filter
LUMA	Luminance
L/R	Left/Right
M	
MAN	Manual
M.BRAKE	Main Brake
M.CUT	Monitor Cut
MEM.	Memory
MIC	Microphone
MIX	Mixer
MMV	Monostable Multivibrator
MOD.	Modulator
M.STATE	Mechanism State
M.STOP	Memory Stop
N	
NEG	Negative
NFB	Negative Feed Back
NOR. (NORM)	Normal
NR	Noise Reduction
O	
OB	Optical Black
OSC	Oscillator
OSD	On-Screen Display
P	
PB (PLAY)	Playback
PG	Pulse Generator
PLL	Phase Locked Loop
POS.	Positive
PROG.	Program
PROT.	Protector
PWM	Pulse Width Modulation
R	
R (RED)	Color Signal Red
RAM	Random Access Memory
REC	Record
RECT.	Rectifier

R	
REF.	Reference
REG.	Regulator
REV	Review
REW	Rewind
RF	Radio Frequency
ROM	Read Only Memory
RSS	Supply Reel Sensor
RST	Take-up Reel Sensor
R-YL	Color Difference Signal R-YL
S	
SAW	Sawtooth Signal
SC1 (0°)	3.58MHz Subcarrier Signal 1 (0-degree Phase Shifted)
SC2 (90°)	3.58MHz Subcarrier Signal 2 (90-degree Phase Shifted)
SEPA. (SEP)	Separator
S/H	Sample and Hold
SP	Standard Play or Speaker
S.REEL	Supply Reel Sensor
SRCH	Search
SRV	Servo
STABI.	Stabilizer
S.TRACK	Slow Tracking
STBY	Standby Mode
S-VHS	Super VHS
SW	Switch
SW30Hz (15 or 25Hz)	30Hz Head Switching Pulse (15 or 25Hz Head Switching Pulse)
SYNC	Synchronizing signal
SYS.CON	System Control
T	
T (TELE)	Telephoto Angle
T.BRAKE	Take-up Brake
TP	Test Point
T.REEL	Take-up Reel Sensor
TRS	Transfer
V	
V (VERT.)	Vertical
V.AGC	AGC Voltage
VCO	Voltage Controlled Oscillator
VD	Vertical Drive
V.DUB	Video Dubbing
VHS	Video Home System
VOL.	Volume
VP	Voltage Pulse
VCXO	Voltage Controlled Crystal Oscillator
W	
W (WIDE)	Wide Angle
WHT	Color Signal White
WHD	Wide Horizontal Drive
WHT BAL.	White Balance
Y	
Y	Luminance Signal
Y/C	Luminance/Chrominance
YEL (Ye)	Color Signal Yellow
YL	Luminance Signal (Low Component)

Identifying Controls

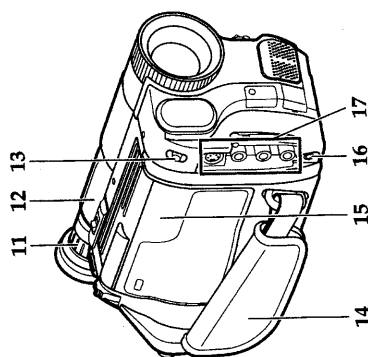


1. **Built-in DC Light (p56)** (for VM-H765LA/VM-E565LA)
2. **Lens Door (p28)**
The lens door will open automatically when the camcorder is set to the camera (CAM) mode.
3. **Power Zoom Control (p31)**
4. **Cassette Eject Switch (p22)**
5. **Shoulder Strap Slot (p16)**
6. **Charge Indicator (p17)**
7. **Record Indicator (p28)**
8. **Infrared Receiver (p14)**
9. **Microphone**
10. **CAM/OFF/VIDEO Power Switch (p28)**

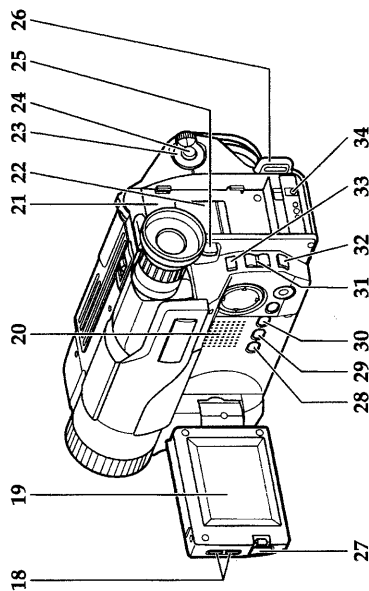
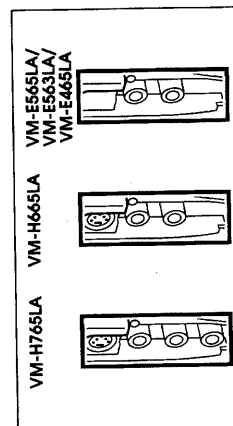
CAM: Set to this position to record.
VIDEO: Set to this position to play back a tape.

11. **Dioptr Control (p16)**
To adjust the viewfinder eyepiece to suit your eyesight.

12. **Electronic Viewfinder (p16)**
13. **DC Light Switch (p56)**
(for VM-H765LA/VM-E565LA)
To switch the DC light between ON, OFF and AUTO.



14. **Hand Strap (p16)**
15. **Cassette Holder (p22)**
Insert cassette here.
16. **Microphone Jack**
(for VM-H765LA/VM-H665LA/VM-E565LA)
Connect external microphone (not supplied) here.
17. **Audio/Video Output Jacks**
(Behind the jack cover) (p50)
Connect the provided AV cable from this jack to the AV input jack of your TV or VCR. The jacks on camcorder differ for each model as follows:
 VM-H765LA has S-VIDEO jack and stereo audio output jacks.
 VM-H665LA has S-VIDEO jack and monaural audio output jack.
 VM-E565LA/VM-E563LA/VM-E465LA has monaural audio output jack.



18. **LCD Brightness Controls (p14)**
19. **2.5-inch LCD Monitor (p14)**
20. **Speaker (p32)**
21. **Power Supply Attachment Section (p17)**
22. **Clock Battery Compartment (p13)**
23. **Sub Power Switch**
STANDBY: Pressing the Start/Stop button will start recording.
LOCK: The camcorder will not enter the record mode even if the Start/Stop button is pressed.
24. **Start/Stop Button (p28, 33)**
This works as a recording start/stop button in the CAM mode and as a playback pause button in the VIDEO mode.
25. **BATT. EJECT Lever (p18)**
Sliding, and then holding, this switch, remove the battery from the camcorder.
26. **Shoulder Strap Slot (p16)**
27. **LCD Monitor OPEN Button (p14)**
To open the LCD monitor.
28. **DATE Button (p26)**
To set the date or display it.
29. **TITLE Button (p46)**
To select or create a title, or display one.
30. **EFFECT Button (p37)**
To record digitally processed image or play back picture with digital effect added.
31. **FOCUS/VOL Control Buttons (p32, 36)**
CAM mode: To switch between auto focus and manual focus, or to control focus while in manual focus mode.
VIDEO mode: To control playback volume.
32. **BLC (Backlight Compensation) Button (p43)**
When recording a subject in bright light, hold this button down to compensate for lighting on tape.
33. **MENU Button (p23)**
To display the menu.
34. **DC IN Jack (p21)**
Use this jack to power the camcorder from the AC adapter or from battery in your vehicle.

Features

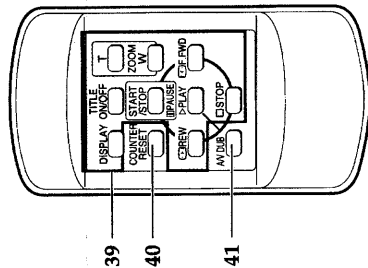
- Easy to use
- Color liquid crystal display (LCD) monitor with speaker
- Tape analyzer ATRS (for VM-H765LA/VM-H665LA)
- TAPE+ function (for VM-H765LA/VM-H665LA)
- Active screen
- Perfect power (Lithium-ion battery)
- Built-in DC light (for VM-H765LA/VM-E565LA)
- X22 optical zoom ratio
- X100 digital zoom ratio (switchable to X500)
- Digital effects
- Stable pix (Electronic Image Stabilization (EIS)) (VM-H765LA/VM-H665LA/VM-E565LA/VM-E563LA)
- Fade in/fade out
- Recorded date search
- Video effects
- Multi playback (PAL60 conversion)

■ Types of differences

	VM-H765LA	VM-H665LA	VM-E565LA	VM-E563LA	VM-E465LA
System	Hi8	Hi8	8	8	8
Audio	stereo	monaural	monaural	monaural	monaural
Built-in DC light	Yes	No	Yes	No	No
EIS function	Yes	Yes	Yes	Yes	No
Program AE	Auto/Mode select	Auto/Mode select	Auto/Mode select	Auto	Auto

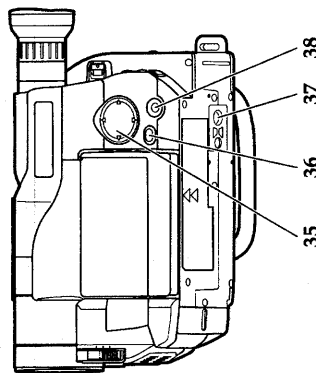
- This instruction manual contains illustrations of VM-H765LA camcorder and displays. Some displays do not appear, depending on the model.

With this camcorder you can view the picture being recorded or the playback picture whether on the LCD monitor or in the viewfinder. Opening or closing the LCD monitor switches the picture to appear on the LCD monitor or in the viewfinder. The following text describes the operation assuming that the viewfinder is used as a major monitor device.



REMOTE CONTROL

- 39. Recorder Remote Control**
Same functions as the corresponding buttons on the camcorder.
- 40. COUNTER RESET Button (only on the remote control) (p45)**
To reset the time counter to 0:00:00.
- 41. A/V DUB Button (only on the remote control) (p53)**
To dub audio and video.



35. Tape Transport and Menu

Setting Buttons (p23, 32)

Tape Transport Buttons:

- ▶ **PLAY:** To play back tape.
- ◀ **REW:** To rewind tape.
- **STOP:** To stop tape.
- ▶ **FWD:** To fast forward tape.

Menu Setting Buttons:

To select menu items and set details.

36. FADE Button (p40)

To select the desired fade mode.

37. Tripod Mounting Threaded Socket

38. PROGRAM AE Button (p42) (for VM-H765LA/VM-H665LA/VM-E565LA/VM-E563LA)

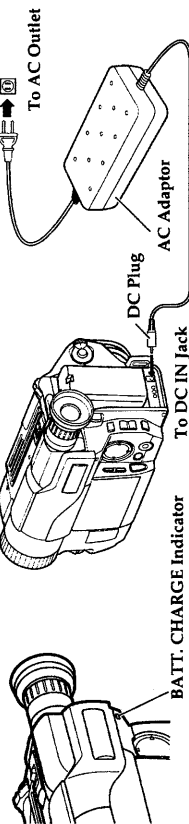
To change the exposure.

Charging the Battery

The first step is to set the battery for charging. To charge the battery, attach it to the camcorder, and connect the VM-ACE5A AC adaptor. Charge the battery at a temperature range of 50°F (10°C) – 86°F (30°C) to prevent damage to the battery.

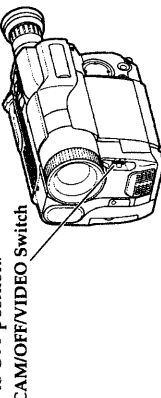
Note: This camcorder operates with a lithium ion battery such as VM-BPL13/VM-BPL30/VM-BPL60.

Note: We cannot be responsible for any malfunctions of the camcorder which occur when you use battery packs other than those specified.



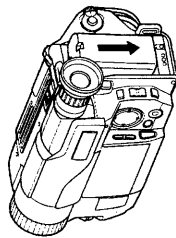
Charge the battery on a flat surface this is free of vibration.

- 1 Make sure the CAM/OFF/VIDEO switch is set to OFF position.



- 2 Attach the battery pack to the camcorder.

- Place the battery on the guide platform and slide it down so that it fits into the camcorder.



Note: Always attach a battery only by the procedure described here. Attaching a battery forcibly could damage it.

- 3 Plug the AC adaptor power cord into an AC outlet.

Make sure that the wide blade fits into the wide slot. If it doesn't fit, try reversing it. If the blades still do not fit fully into the outlet, either contact an electrician to replace your obsolete outlet, or use a polarized cord or outlet accessory.

- 4 Connect the AC adaptor DC plug to the DC IN jack of the camcorder.

Charging will start within five seconds. During charging, the BATT. CHARGE indicator of the camcorder will flash or light to give you a reference of the charged level.

Note: If the BATT. CHARGE indicator flashes once every two seconds, the battery could be defective.

Note: The BATT. CHARGE indicator will not light at all when the AC adaptor is defective.

Note: You can use the battery before it is completely charged.

Note: When charging is complete, the BATT. CHARGE indicator on the camcorder will light. If the fully charged battery is removed and then reattached, the camcorder will again enter the charge mode, and the BATT. CHARGE indicator will flash. It will take a few minutes for the camcorder to enter the charge complete status.

Note: Charging at low temperatures will decrease charge capacity.

- 5 After charging is complete, disconnect the AC adaptor DC plug from the camcorder.

- 6 Disconnect the AC plug from the AC outlet.

- 7 Detach the battery from the camcorder.

Note: Always remove the battery from the camcorder after use.

Note: Charging will not be performed when the CAM/OFF/VIDEO switch of the camcorder is set to CAM or VIDEO. However, if recording pause continues for more than 5 minutes in the CAM mode, the camcorder will automatically turn off, after which charging will start. If the sub-power switch is set to LOCK, charging will be performed even when the CAM/OFF/VIDEO switch is set to CAM.

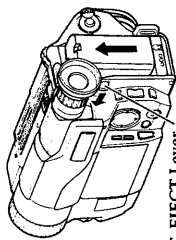
Note: If the DC plug is disconnected when the battery is attached and the CAM/OFF/VIDEO switch is set to CAM or VIDEO, the camcorder will turn off once, but then automatically turn on again. Note that the battery will discharge if the camcorder is left as is.

VM-H765LA/VM-H665LA/VM-E565LA/VM-E563LA/VM-E465LA

E17

Removing the Battery Pack

Slide the BATT. EJECT lever in the direction of the arrow and hold it; then slide the battery to the upper side and remove.



BATT. EJECT Lever

Reference of Charged Level

You can know the approximate charge level of battery by observing how the BATT. CHARGE indicator of camcorder flashes or lights:

Charge level	BATT. CHARGE indicator
0-50% charge	Flashes once at approx. one-second intervals.
50-75% charge	Flashes twice at approx. one-second intervals.
More than 75% charge	Flashes three times at approx. one-second intervals.
Full charge	Steady light

Charging Time

Battery	VM-BPL13	VM-BPL30	VM-BPL60
Charging			
Full charge	3h	5h 30 min	9h 50 min
75% charge	1h 50 min	3h 40 min	7h

Operating Time

The camcorder operating time depends on how often you turn power on/off and use start/stop and zoom.

Continuous Recording

EVF: when using the viewfinder
LCD: when using the LCD monitor

Battery	VM-BPL13	VM-BPL30	VM-BPL60
VM-H765LA			
EVF	2h 40 min	5h 55 min	12h
LCD	2h 15 min	5h	10h 20 min
VM-H665LA			
EVF	2h 45 min	6h 5 min	12h 20 min
LCD	2h 20 min	5h 15 min	10h 40 min
VM-E565LA			
EVF	2h 50 min	6h 15 min	12h 40 min
LCD	2h 25 min	5h 30 min	11h 10 min
VM-E563LA			
EVF	2h 50 min	6h 15 min	12h 40 min
LCD	2h 25 min	5h 30 min	11h 10 min

E18

Battery	VM-BPL13	VM-BPL30	VM-BPL60
VM-E465LA			
EVF	2h 50 min	6h 15 min	12h 40 min
LCD	2h 25 min	5h 30 min	11h 10 min

Typical Recording

EVF: when using the viewfinder
LCD: when using the LCD monitor

Battery	VM-BPL13	VM-BPL30	VM-BPL60
VM-H765LA			
EVF	1h 35 min	3h 30 min	7h 10 min
LCD	1h 20 min	3h	6h 10 min
VM-H665LA			
EVF	1h 40 min	3h 35 min	7h 20 min
LCD	1h 25 min	3h 5 min	6h 20 min
VM-E565LA			
EVF	1h 45 min	3h 45 min	7h 35 min
LCD	1h 30 min	3h 15 min	6h 40 min
VM-E563LA			
EVF	1h 45 min	3h 45 min	7h 35 min
LCD	1h 30 min	3h 15 min	6h 40 min
VM-E465LA			
EVF	1h 45 min	3h 45 min	7h 35 min
LCD	1h 30 min	3h 15 min	6h 40 min

Notes on the Battery

- It is recommended that the battery always be left in the discharged state when not in use, and charged before you use it.
- Avoid storing a fully charged battery, and do not store it in a place where the temperature is high; this will damage the battery.
- Do not operate the battery at temperature below 14°F (-10°C) or above 113°F (45°C). At extremely low temperatures operation time decreases, while at high temperature the battery may be damaged.
- Do not attach a hot battery to the camcorder. Allow it to cool.

THERE ARE NO USER-SERVICEABLE PARTS
INSIDE THE BATTERY
OR AC ADAPTOR.

THROWING THE BATTERY INTO FIRE
OR EXPOSING IT TO EXCESSIVE HEAT
(ABOVE 140°F (60°C))
MAY CAUSE INJURY.

SHORTING THE BATTERY'S TERMINAL
INCREASES RISK OF FIRE OR
ELECTRICAL SHOCK.

HITACHI

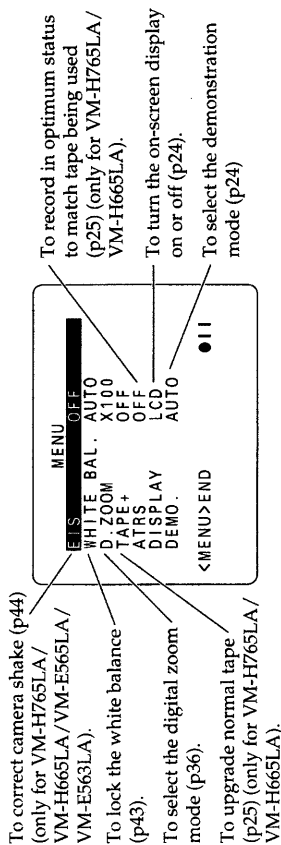
Items Selectable with Menu Displays

The items that can be selected depend on the position of power switch.

Note: The VM-H765LA menu displays are used for the following explanation. Some items do not appear, depending on the model.

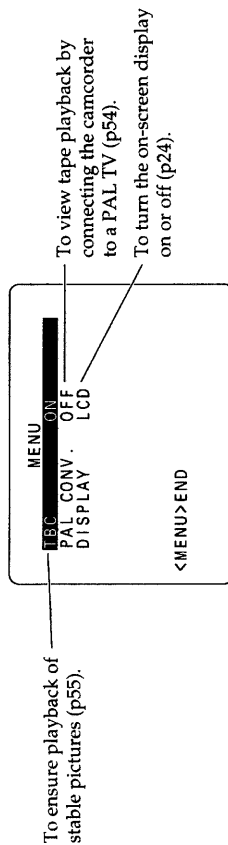
Menu selectable in the CAM mode

When the MENU button is pressed, the following menu display will appear:



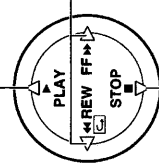
Menu selectable in the VIDEO mode

Pressing the MENU button will display the following:



How to select items and set them

- 1 Press the MENU button.
- 2 Press the PLAY or STOP button to select the desired item.
- 3 Use the FF or REW button to select the desired mode.
- 4 Press the MENU button again to determine the mode.



To select an item whose mode you wish to change. Press STOP to move the cursor down.

Remaining Tape

The tape remaining display shows the remaining tape that can be used for recording and playback, using seven dashes. This feature is handy when recording since it lets you know how long you can record on the loaded tape.

Insert a cassette into the camcorder and start recording or playback; 10 seconds later, the remaining tape will be displayed. When the cassette is ejected, the display will disappear. "-----" is displayed for 10 seconds after the tape starts to run.

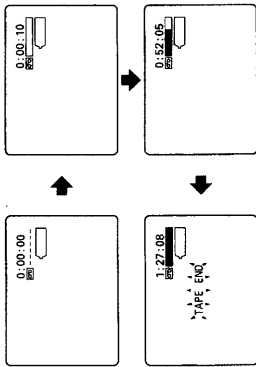
Note: The tape remaining display appears 10 seconds after the tape starts to run.

Note: When the remaining tape time becomes

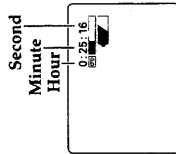
Using the Linear Time Counter

The linear time counter displays the tape run in hours, minutes, and seconds, helping you to keep track of how long you've been filming or time you have left to film before running out of tape.

less than about three minutes. "TAPE END" flashes in the viewfinder or on the LCD monitor.



Turn the camcorder on to display the linear time counter. The linear time counter keeps track from when you load a cassette into the camcorder and clears to "0:00:00" when the cassette is ejected.



Switching On-Screen Display On/Off

Using menu selection, you can turn off the camcorder status display during recording and playback, and turn it on again afterwards.

- 1 Set the CAM/OFF/VIDEO switch to CAM.

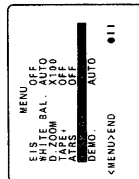
- 2 Press the MENU button.

- 3 Press the PLAY or STOP button to select "DISPLAY".

- 4 Press the REW or FF button to select the desired mode:

LCD: Information on the tape remaining, time counter, etc. is displayed on the LCD monitor.

LCD/LINE: M is displayed beside the time



Demonstration Mode

Using the menu, you can switch the demonstration mode that is set in this camcorder.

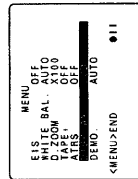
- 1 Set the CAM/OFF/VIDEO switch to CAM.

- 2 Press the MENU button.

- 3 Press the PLAY or STOP button to select "DEMO".

- 4 Press the REW or FF button to select the desired mode:

AUTO: If you leave the camcorder for 10 minutes without inserting a cassette when no date



has been set, or the clock battery is dead, the demonstration mode will automatically engage.

START: The demonstration mode will also start after the MENU button is pressed and START is specified.

Off: The demonstration mode is off.

- 5 Press the MENU button.

Note: The demonstration mode will continue until power is turned off, or the MENU button is pressed and "AUTO" or "OFF" is specified.

Recording Hi8 Quality Image on Normal Tape (for VM-H765LA/VM-H665LA)

Using the menu, you can record on normal 8 mm tape and get picture quality equivalent to **Hi8**.

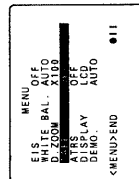
- 1 Insert a normal 8 mm tape.

Note: We recommend that you use an HG grade tape.

- 2 Set the CAM/OFF/VIDEO switch to CAM.

- 3 Press the MENU button.

- 4 Press the PLAY or STOP button to select "TAPE+".



● Tapes used

TAPE+	Tape used	Recording format	Display
ON	Normal 8 mm tape	Upgrade recording	TAPE+
OFF	Normal 8 mm tape	8 mm recording	None
	Hi8 tape	Hi8 recording	Hi8

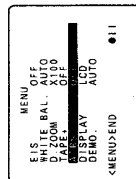
Tape Analyzer ATRS (auto tape recording system) (for VM-H765LA/VM-H665LA)

This camcorder automatically evaluates the tape characteristics during recording, in order to ensure recording in optimum status.

- 1 Set the CAM/OFF/VIDEO switch to CAM.

- 2 Press the MENU button.

- 3 Press the PLAY or STOP button to select "ATRS".



- 4 Press the FF button to specify "ON"; "ATRS PRESS REC START" will flash.

VM-H765LA/VM-H665LA/VM-E565LA/VM-E563LA/VM-E465LA

E25

E26

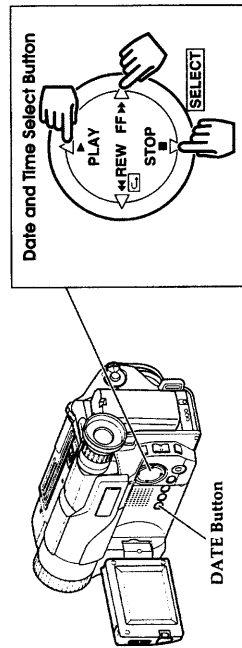
HITACHI

Setting the Date and Time

Take the time to set the date and time now. The date and time can be recorded on your tapes to act as a handy reference when viewing them later. Use the following procedure to set up the display for the current date and time.

Note: Be sure to insert the clock battery before setting the date and time. Although the date and time can be set without the clock battery inserted, they will disappear when the battery providing power to the camcorder is removed.

Make sure that the current time is displayed correctly before you start filming.



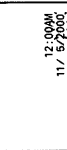
- 1 Load the battery. ("Camcorder Power Sources", p20.)

- 2 Press the small button on the CAM/OFF/VIDEO switch as you slide it to CAM.

- 3 Open the LCD monitor, and then press the DATE button.

The date and time should appear in the lower right with the "1" flashing.

- 4 Pressing the PLAY button gives you higher numbers while the STOP button gives you lower numbers. Select the right month and press FF button. Use the PLAY, STOP and FF buttons to select the proper day, year, hour, minute, and AM or PM.



- 5 After setting the AM/PM, press the DATE button. The display changes and the internal clock starts.

Note: After the date and time are set, the camcorder enters the date recording mode. See "Date Recording" on page 35.

Correcting the Date and Time

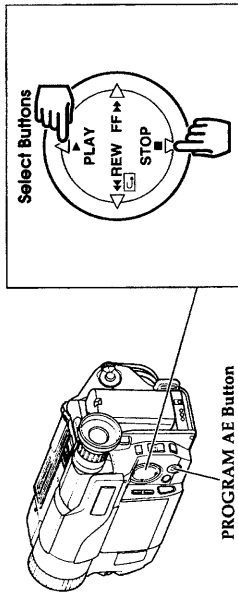
- 1 Hold down the DATE button for at least 3 seconds: The flashing cursor will appear at the month.

- 2 Move to where you need to make the correction with the FF button and use the PLAY and STOP to correct.

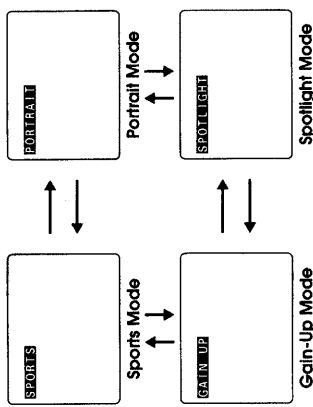
- 3 Press the DATE button to set the corrected date and time.

Using the PROGRAM AE Button (for VM-H765LA/ VM-H665LA/VM-E565LA)

This camcorder can easily set the shutter speed and aperture to suit the subject condition, recording situation or purpose, as well as adjusting all of these according to the subject brightness (conventional program AE). Press the PROGRAM AE button to select the recording mode according to the subject to be recorded and the recording conditions.



- 1 Press the PROGRAM AE button: **SPORTS** will appear in the viewfinder or LCD monitor.
- 2 Press the PLAY or STOP button to select the desired recording mode.
- 3 Press the Start/Stop button to start recording. To return to the full auto mode, press the PROGRAM AE button.



No Display: Full Auto Mode

In this mode, the camcorder automatically adjusts the shutter speed and aperture according to the subject brightness. Therefore, use this mode for standard recording.

SPORTS: Sports Mode

Select this mode when recording rapidly moving subjects, such as golf or tennis swings, etc.: The subject will be clearly recorded, without blurring.

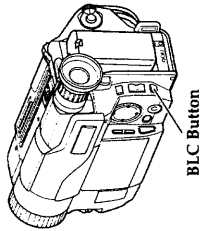
PORTRAIT: Portrait Mode

Select this mode when recording a subject portrait standing out from a blurred background.

Using the Backlight Compensation

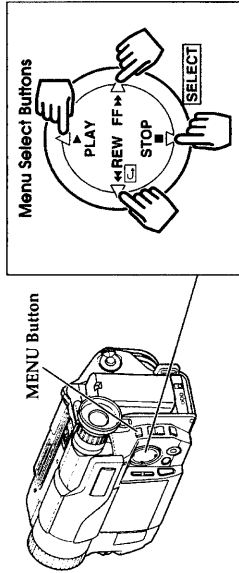
The camcorder contains an auto iris that adjusts the lens aperture depending on the available light, widening it under low light conditions and narrowing it when bright light is available. When the camcorder is turned off the iris fully closes.

When you are filming a subject in front of a brightly lit background, press and hold the BLC button. It will correct the lighting on the tape.

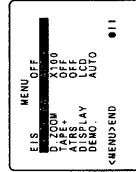
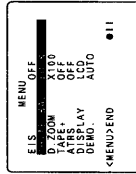
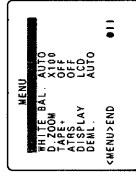


Locking the White Balance

This camcorder adjusts the white balance automatically (auto white balance). Using the menu, you can lock the optimum white balance set in the auto white balance status.



- 1 Set the CAM/OFF/VIDEO switch to CAM.
- 2 Press the MENU button: The menu display will appear.
- 3 Press the STOP or PLAY button to select "WHITE BAL."
- 4 Press the FF or REW button to display "LOCK".
- 5 Press the MENU button: The menu display will disappear from the LCD monitor or viewfinder.



- 3 Press the STOP or PLAY button to select "WHITE BAL."

Note: If the CAM/OFF/VIDEO switch is set to VIDEO, locking will be released and "AUTO" will be specified again.

Note: If unnatural colors appear on the LCD monitor with "WHITE BAL. LOCK" specified, reset the white balance or specify "WHITE BAL. AUTO".

1. BEFORE STARTING DISASSEMBLY

- (1) Dismantle and reassemble the mechanism in loading stop status, except for the following components:

- Cassette Lid
- Top Cover
- Parts on the UH mechanism

Note: After dismantling or reassembling the cassette lid or top cover, return the mechanism to loading stop status.

- (2) For manually operating the mechanism (unloading or loading), refer to: "How to Operate the Mechanism Manually".
- (3) Dismantle each component according to "1.1 Disassembly Procedure".
- (4) For reassembly, perform the reverse procedure to disassembly when not otherwise specified.
- (5) Disconnect flat cables from connectors by the procedure shown in Fig. 1-1. Since many circuit boards in the camera/recorder are connected by in-board connectors, be sure to follow DISASSEMBLY when removing the circuit boards.

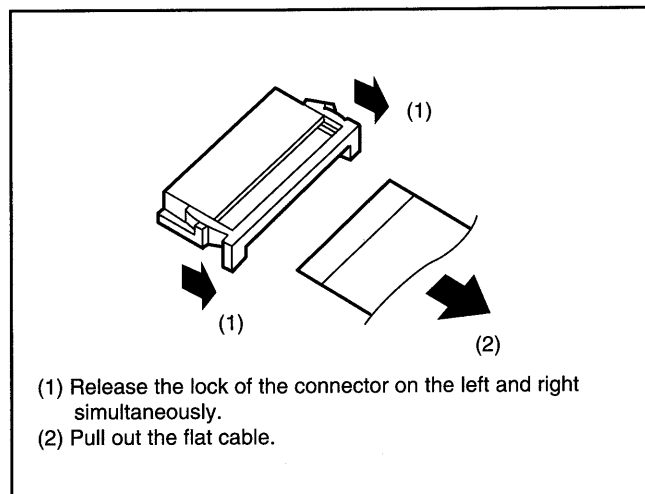
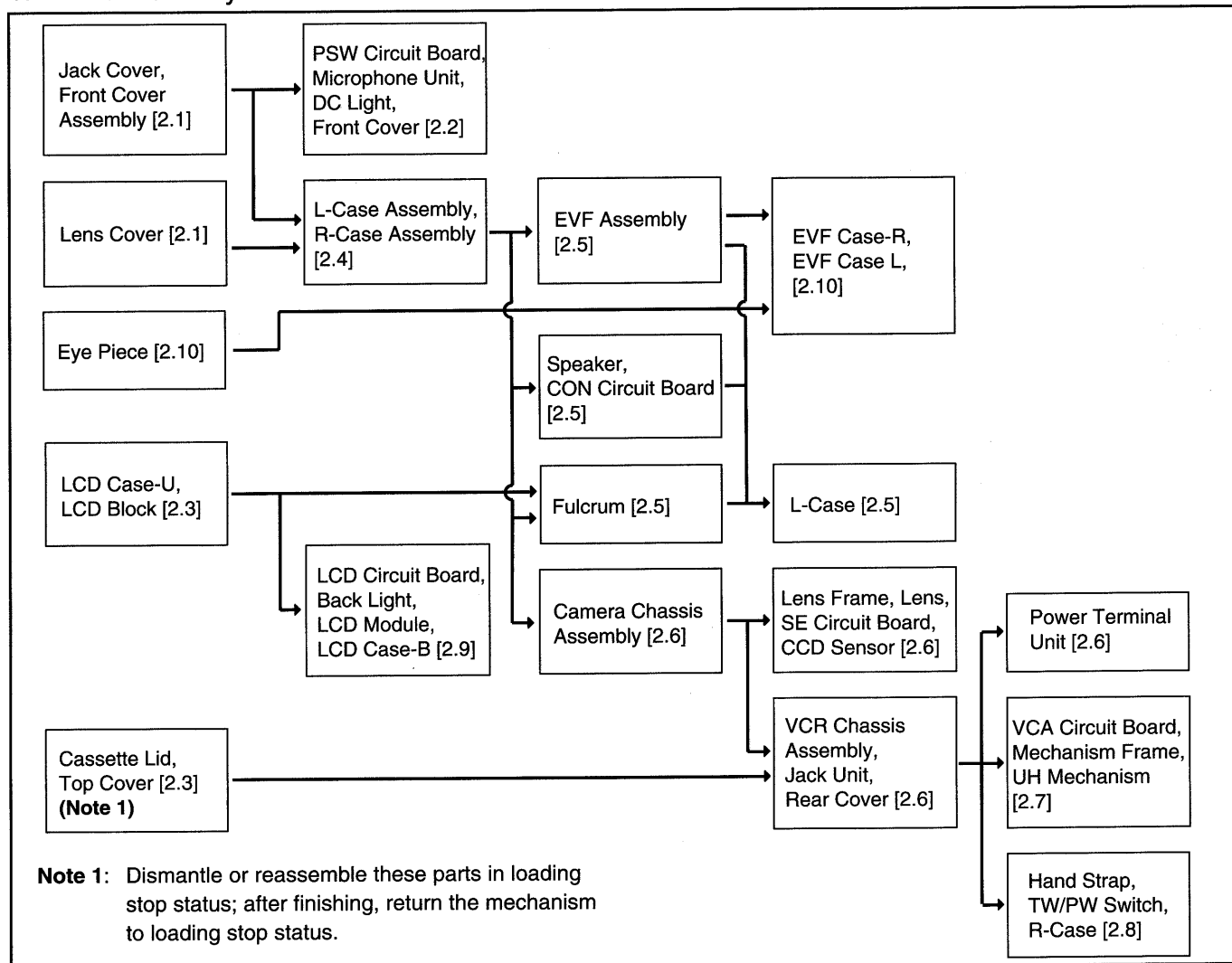


Fig. 1-1

1.1 Disassembly Procedure



2. CASES AND CIRCUIT BOARDS REMOVAL

2.1 Jack Cover, Front Cover Assembly, Lens Cover (Fig. 2-1)

Cautions:

Be careful not to damage the cables of the microphone.

Reinstallation procedure and caution:

The O-ring must be installed in the position shown in Fig. 2-1.

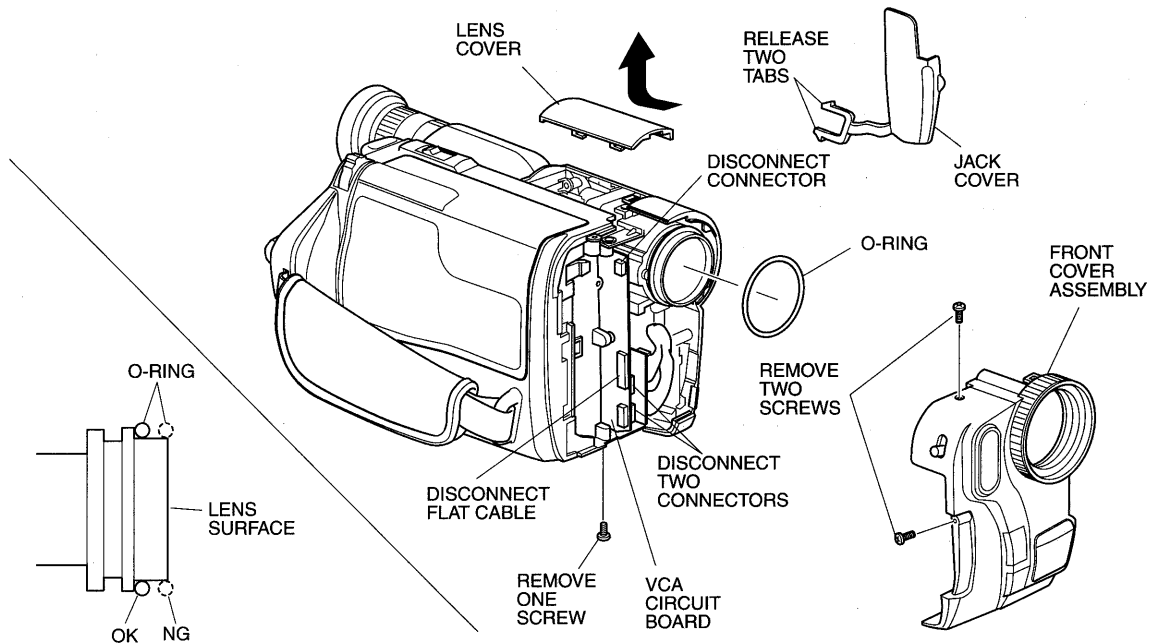


Fig. 2-1

2.2 PSW Circuit Board, Microphone Unit, DC Light, Front Cover (Fig. 2-2)

Note: Some models are not equipped with the DC light.

Reinstallation procedure and caution:

Take care with the orientation of the microphone when reinstalling it: The red wire is for the left side; the white lead is for the right side.

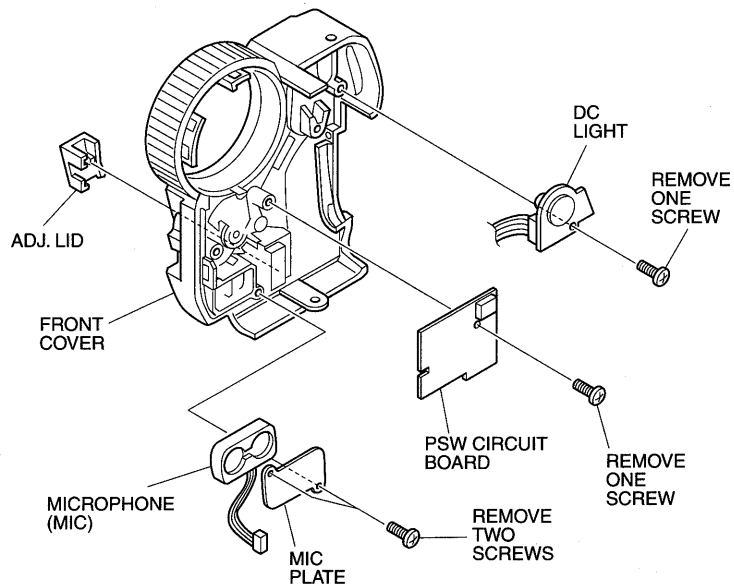


Fig. 2-2

2.3 LCD Case-U [Except for TYPE 660, 368, 360], LCD Block [Except for TYPE 660, 368, 360], Cassette Lid, Top Cover (Figs. 2-3-1, 2-3-2, 2-3-3)

Cautions:

1. Dismantle and reassemble only the cassette lid and top cover in loading stop status. After work is completed, return the mechanism to loading stop status.
2. Be careful that the LCD screen is not damaged or smudged. (If dirt adheres to it, use a soft cloth to wipe it off.)
3. Handle the LCD module and backlight with extreme care.

■ Advise of Top Cover Removal

Insert a flat-bladed screwdriver between the top cover and sub chassis, and push section (B) of the plate spring in the direction of arrow (C), to remove the top cover in the direction of the arrow. (See Fig. 2-3-3)

Reinstallation procedure and caution:

To install the cassette lid, first engage sections (A) with the cassette holder.

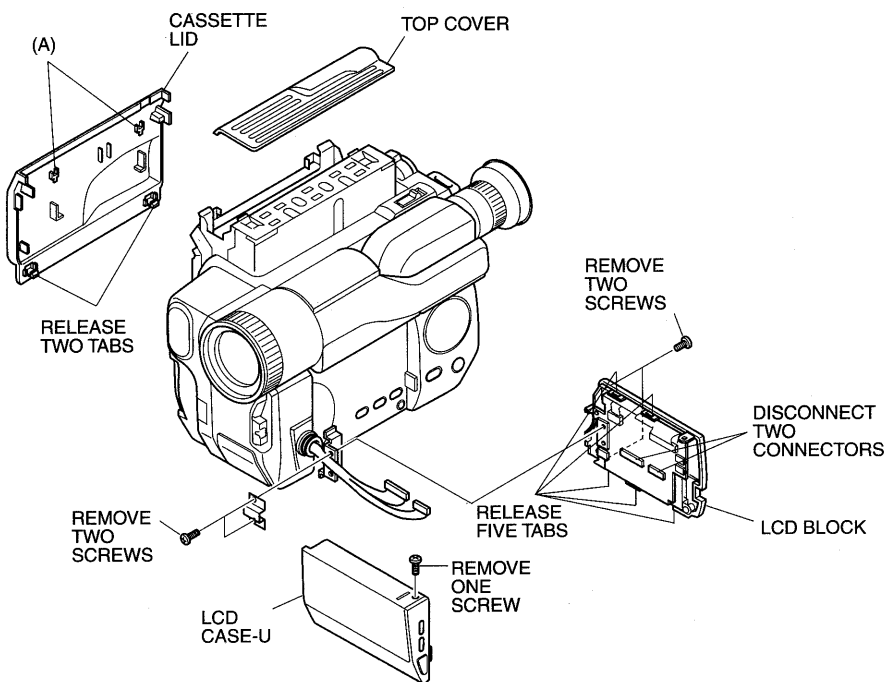


Fig. 2-3-1 [Except for TYPE 660, 368, 360]

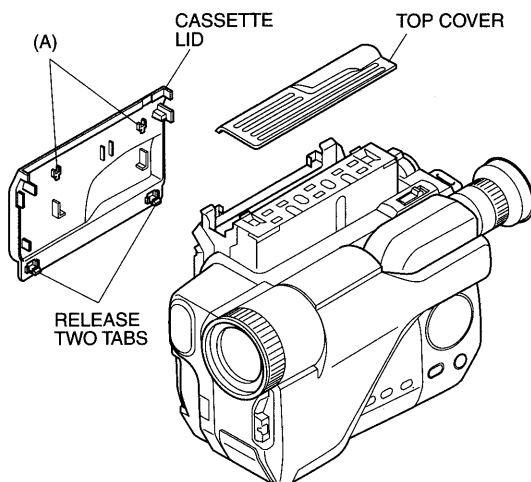


Fig. 2-3-2 [For TYPE 660, 368, 360]

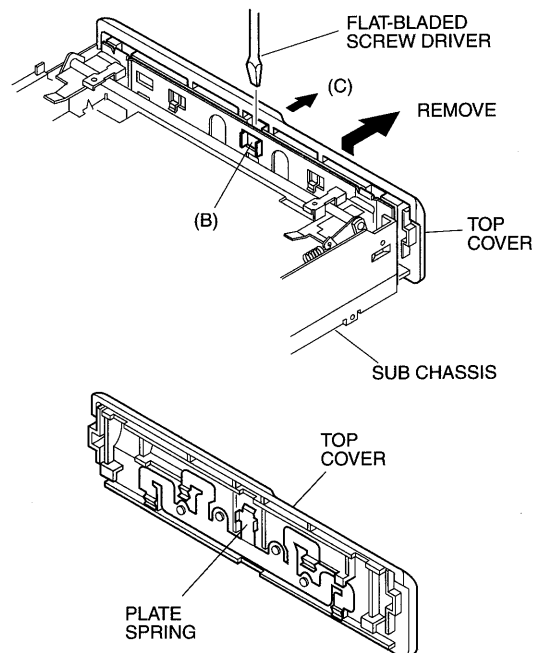


Fig. 2-3-3

2.4 L-Case Assembly, R-Case Assembly (Figs. 2-4-1, 2-4-2)

Caution:

Be careful so as not to damage the connectors (PG951 and PG731) between the VCA and CON circuit boards.

Reinstallation procedure and caution:

Connect connectors PG951 and PG731 securely.

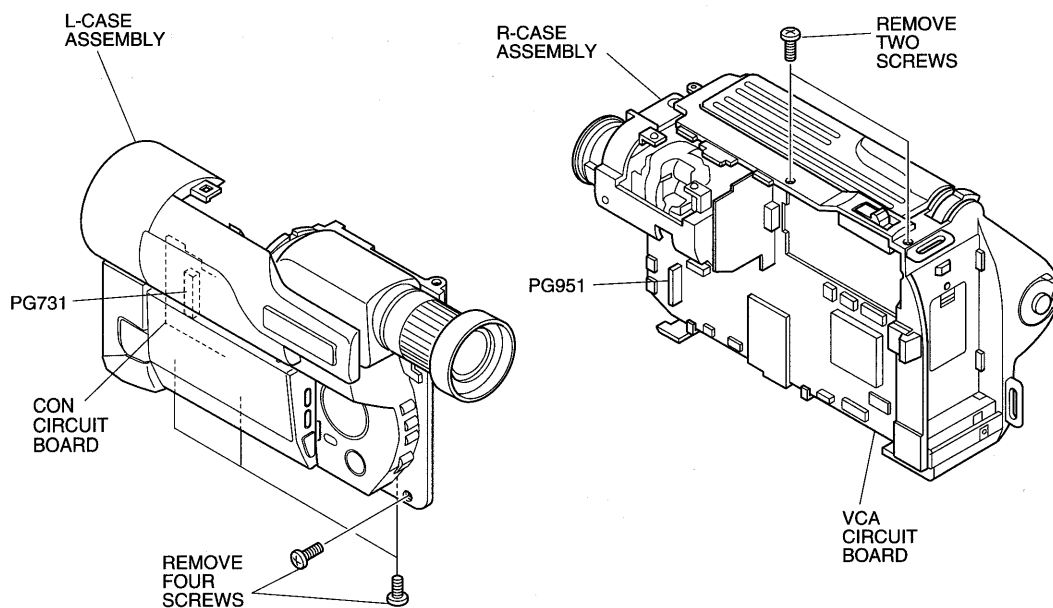


Fig. 2-4-1 [Except for TYPE 660, 368, 360]

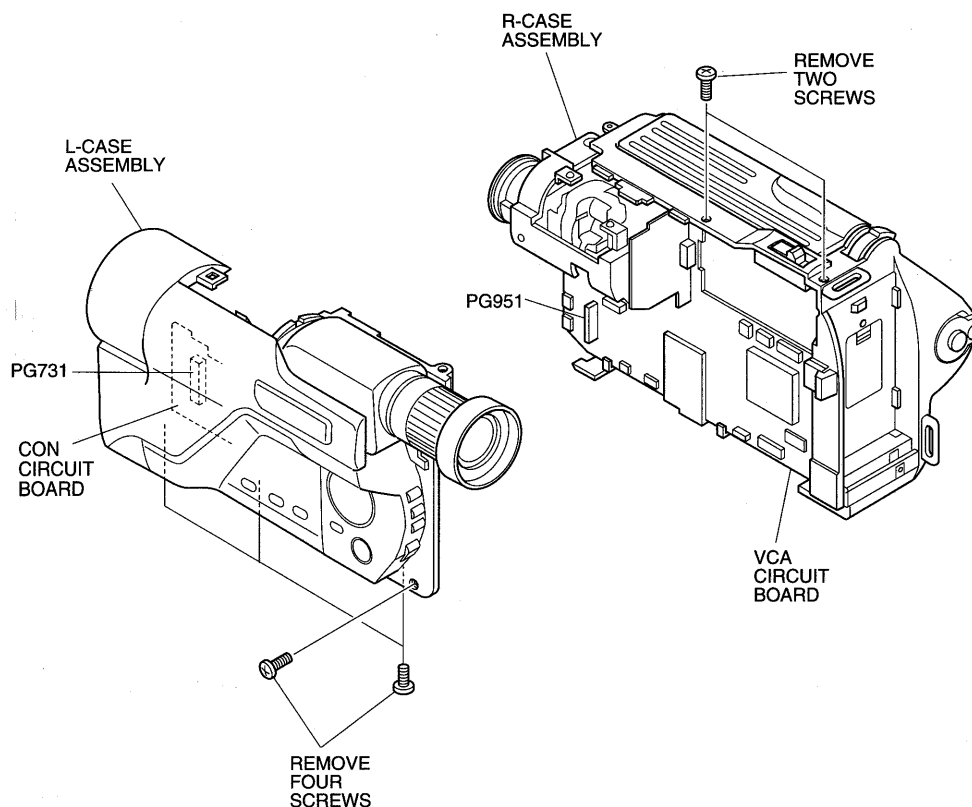


Fig. 2-4-2 [For TYPE 660, 368, 360]

2.5 Electronic Viewfinder (EVF) Assembly, Speaker [Except for TYPE 660, 368, 360], CON Circuit Board, Fulcrum [Except for TYPE 660, 368, 360], L-Case (Figs. 2-5-1, 2-5-2, 2-5-3)

Cautions:

Be careful not to damage the LCD Open/Close switch on the CON circuit board.

Reinstallation procedure and caution:

When reinstalling the EVF assembly, speaker, CON circuit board and fulcrum, lay out each cable as shown in Fig. 2-5-3.

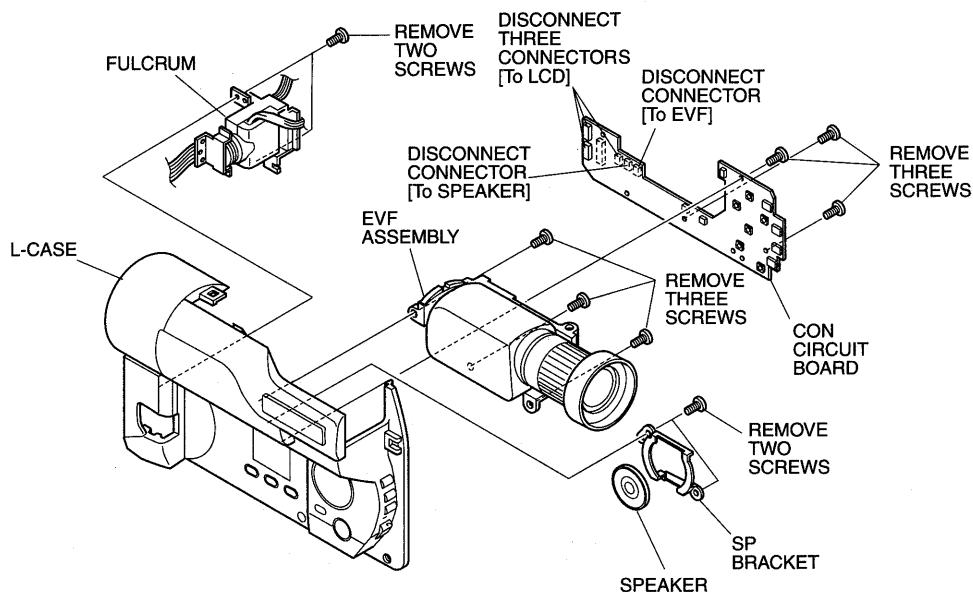


Fig. 2-5-1 [Except for TYPE 660, 368, 360]

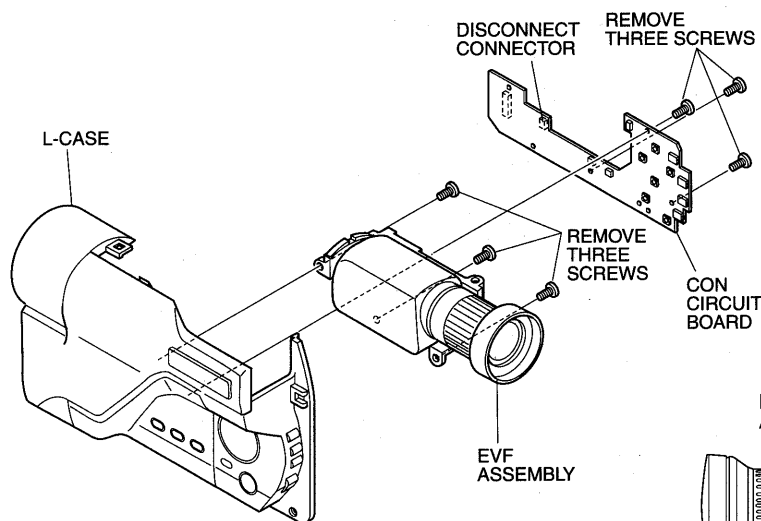


Fig. 2-5-2 [For TYPE 660, 368, 360]

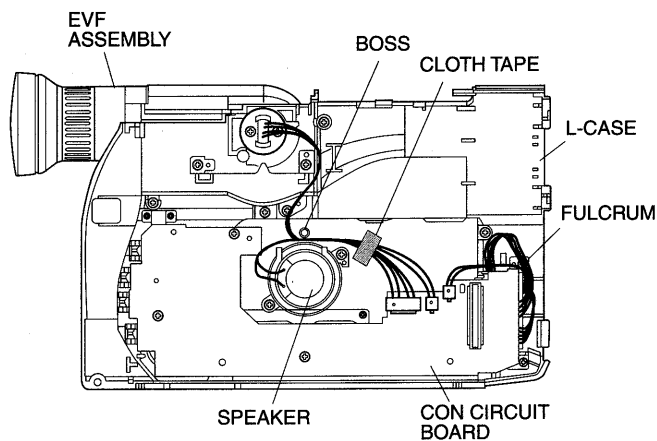


Fig. 2-5-3

2.6 Camera Chassis Assembly (Lens Frame, Lens, SE Circuit Board, CCD Sensor), VCR Chassis Assembly, Jack Unit, Rear Cover, Power Terminal Unit (Fig. 2-6)

Cautions:

1. Be careful so as not to damage the connectors (PG201 and PG1001) between the VCA and SE circuit boards.
2. Be careful so as not to damage the connectors between the VCA circuit board (PG0001) and rear cover (power terminal unit).
3. Be careful not to damage the crystal filter and CCD sensor.

Reinstallation procedure and caution:

1. Connect connectors PG201 and PG1001 securely.
2. Connect connectors PG0001 and rear cover (power terminal unit) securely.
3. The crystal filter is non-directional.
4. Fit in the CCD sensor parallel to the SE circuit board, fix it with screws, and then solder it.

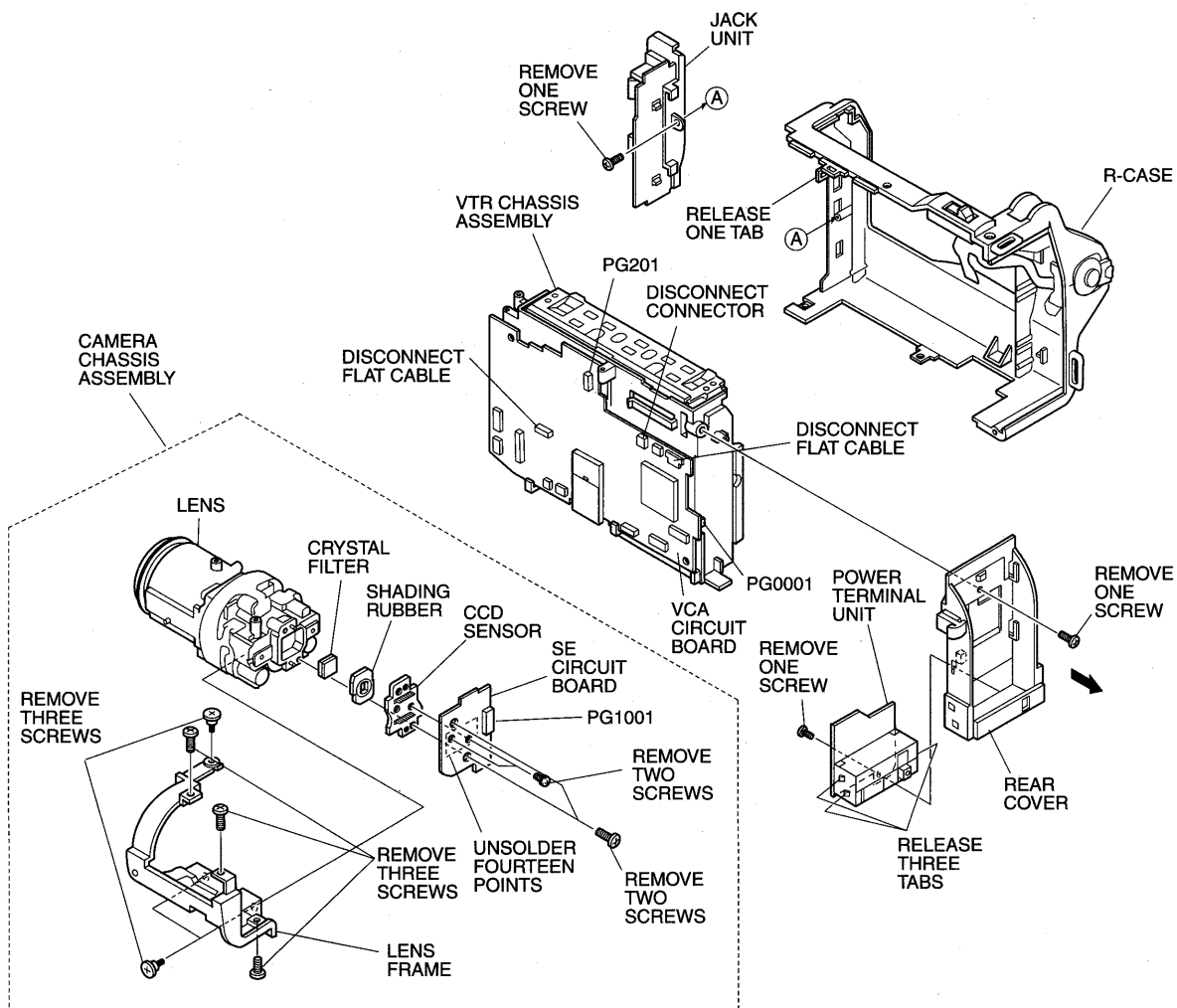


Fig. 2-6

2.7 VCA Circuit Board, Mechanism Frame, UH Mechanism (Fig. 2-7)

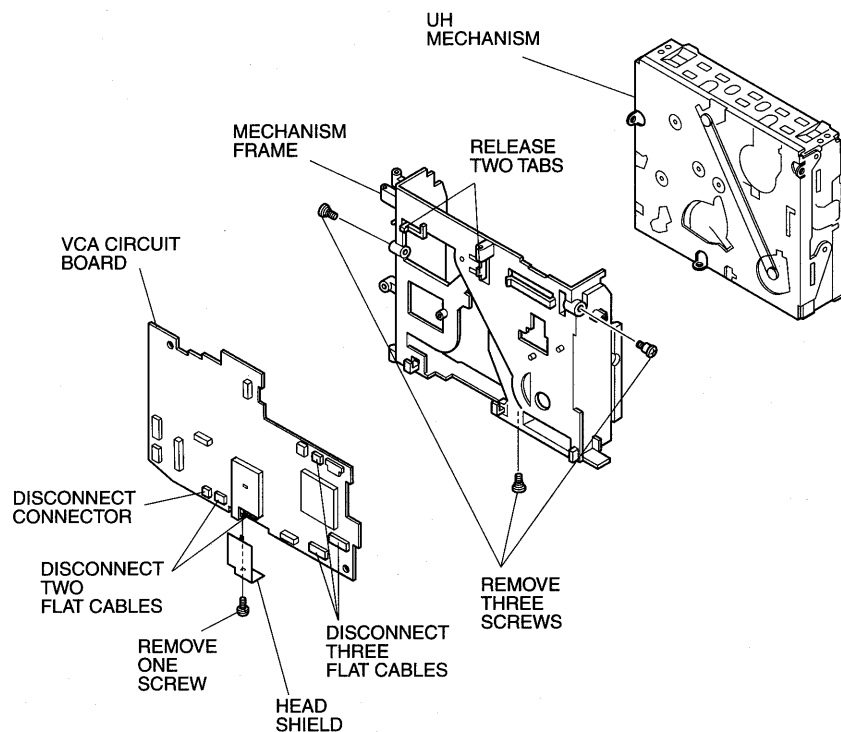


Fig. 2-7

2.8 Hand Strap, TW/PW Switch, R-Case (Fig. 2-8)

Cautions:

Be careful not to damage the flat cable of the TW/PW switch.

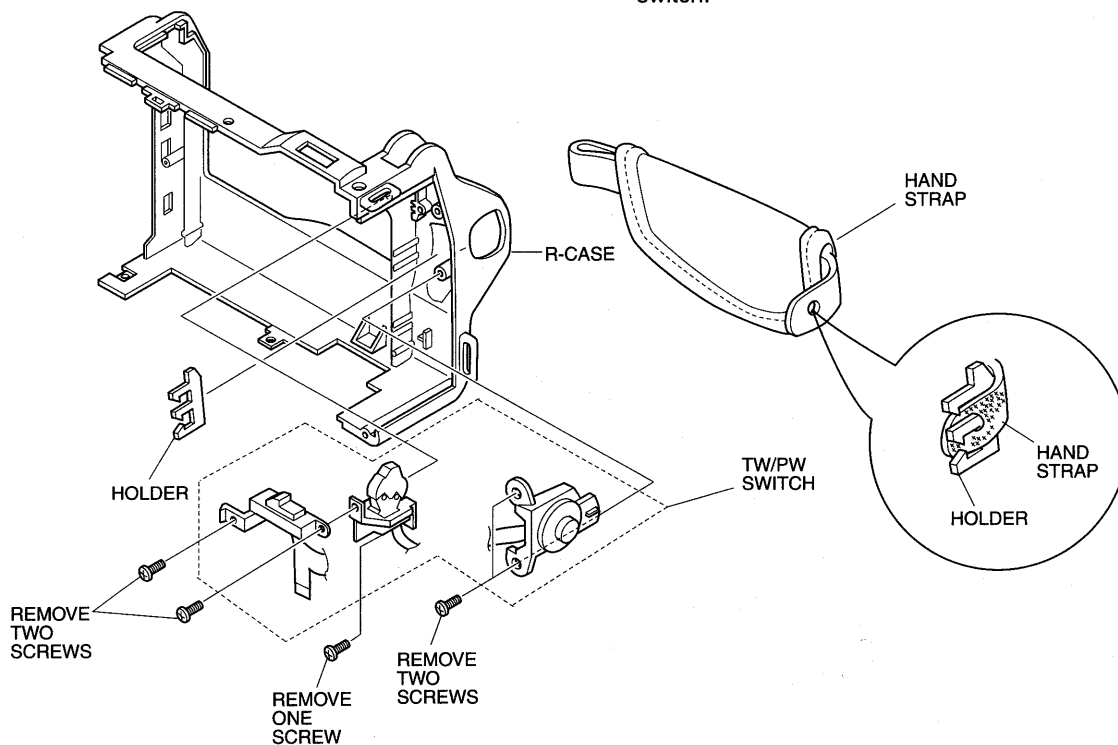


Fig. 2-8

2.9 LCD Circuit Board, Back Light, LCD Module, LCD Case-B (Fig. 2-9) [Except for TYPE 660, 368, 360]

Cautions:

1. Be careful that the LCD screen is not damaged or smudged. (If dirt adheres to it, use a soft cloth to wipe it off.)
2. Handle the LCD module and backlight with extreme care.

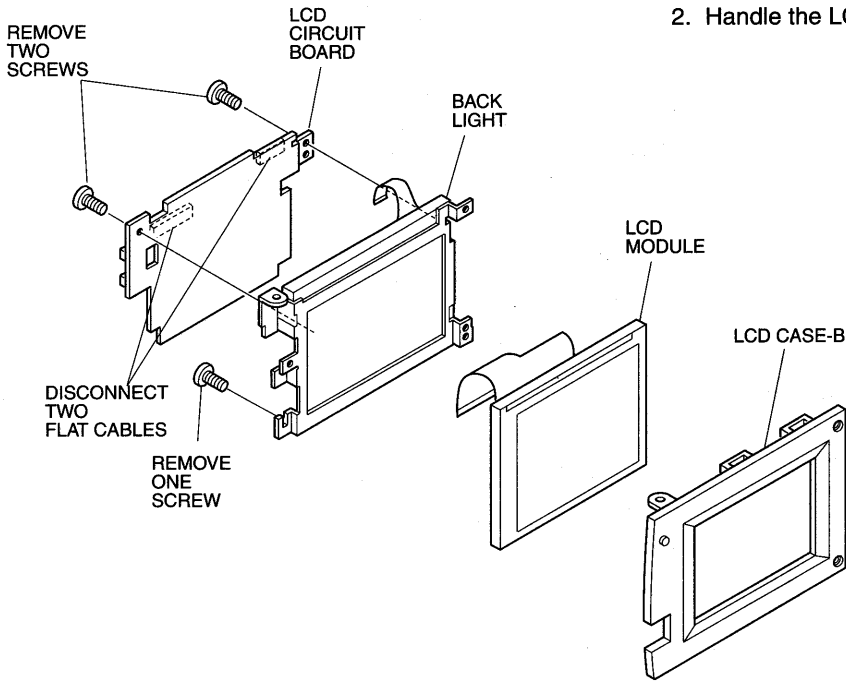


Fig. 2-9 [Except for TYPE 660, 368, 360]

2.10 EVF Case-R, EVF Case-L, Eye Piece (Fig. 2-10)

Cautions:

1. Be careful not to damage the CRT.

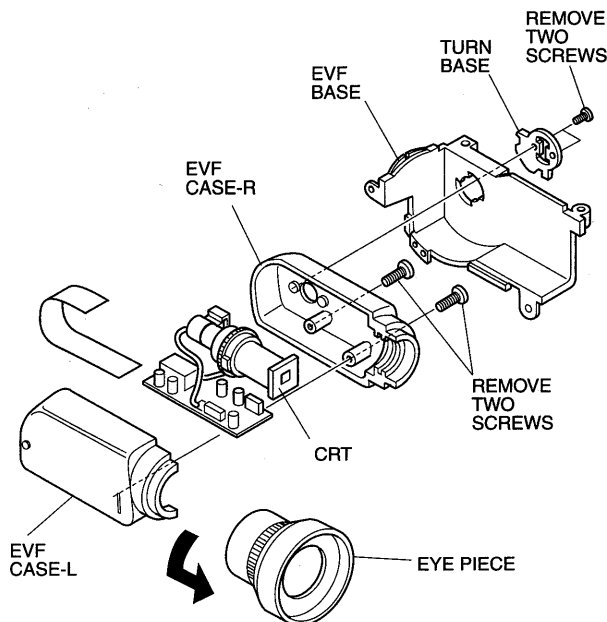


Fig. 2-10

3. HOW TO OPERATE THE MECHANISM MANUALLY

CAUTION :

Perform this procedure for emergency only when normal loading or unloading is not possible because the electrical circuits or loading motor is defective.

- (1) Remove the r-case assembly. (See Fig. 2-5)
- (2) Disconnect connector (CN604) from PG604 on the VCA circuit board, and supply 4V DC to CN604 (directly to the loading motor). (See Fig. 3-1)
Connecting CN604 brown wire (+) and red wire (-) results in unloading.
Connecting CN604 red wire (+) and brown wire (-) results in loading.

Note: To unload the mechanism with a tape inserted, manually turn the capstan motor simultaneously to take up the tape.

If loading or unloading does not occur even when 4V DC is directly supplied to the loading motor, perform the following procedure:

- (3) Remove the camera chassis assembly and rear unit. (See Fig. 2-7)

Note: Note that it is difficult to remove the rear unit.

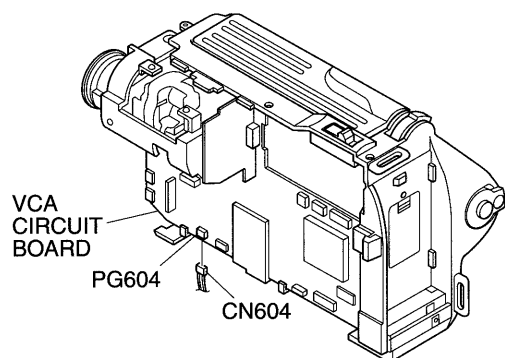


Fig. 3-1

- (4) Disconnect 3 flat cables. (See Fig. 3-2)
- (5) Disconnect connector. (See Fig. 3-2)
- (6) Remove 1 screw holding the head shield. (See Fig. 3-2)
- (7) Disconnect 2 flat cables. (See Fig. 3-2)
- (8) Remove 3 screws. (See Fig. 3-2)
- (9) Remove the UH mechanism in the direction of the arrow from the r-case. (See Fig. 3-2)
- (10) Remove the cassette lid and top cover. (See Fig. 2-3)

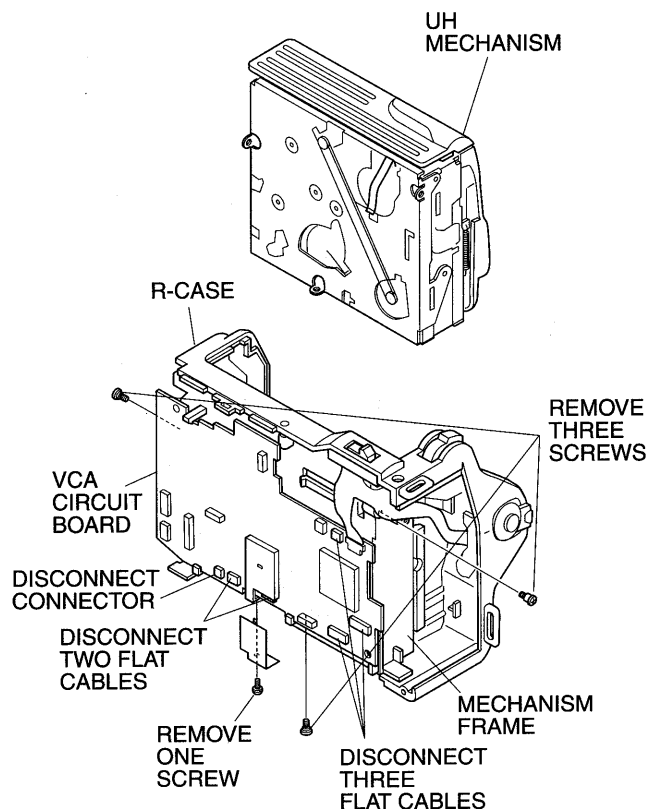


Fig. 3-2

- (11) Release 2 tabs and pull out the loading motor from the loading motor holder. (See Fig. 3-3)

Note: The above removal is different from normal removal. In normal circumstances, remove the loading motor assembled with the loading motor holder. (The loading motor and loading motor holder comprise an assembly.)

- (12) Turn over the mechanism. (See Fig. 3-3)

Note: Do not turn over with the idler cover removed.

- (13) Use a flat-bladed screwdriver, etc. to turn cam gear (A) or (B). (See Fig. 3-3)
Turning it in the direction of the arrow will unload the mechanism, and turning it in the opposite direction to the arrow will load the mechanism.

Notes: 1. Be careful not to damage the cam gears.
2. To unload the mechanism with a tape inserted, manually turn the capstan motor simultaneously to take up the tape.

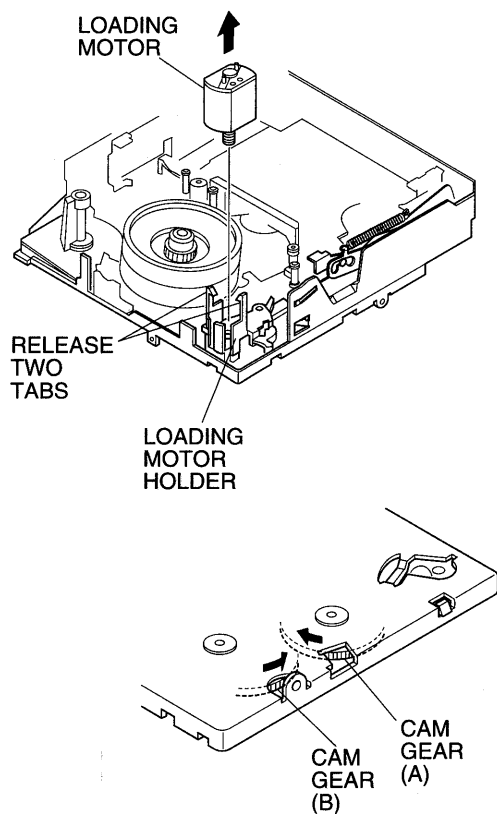


Fig. 3-3

Memo

Trademark

MS-DOS is a registered trademark of Microsoft Corporation.

Abbreviation

MAP: Digital adjustment program.

DSP: Digital signal processor

1. CONNECTION FOR ADJUSTMENT

1.1 Before Starting Adjustment

- (1) Set the date. (If the camera/recorder is left for several minutes with no date set after power is turned on, it will automatically enter the demo mode.)

Notes: 1. Perform the electric circuit adjustments using a personal computer.

2. It is not necessary to remove cases for electric circuit adjustments.
3. The ODC DC cord is a jig which is to be used in the Power Shut Off Level (ODC) Adjustment. For other adjustments, the AC adapter can be used as a power supply.

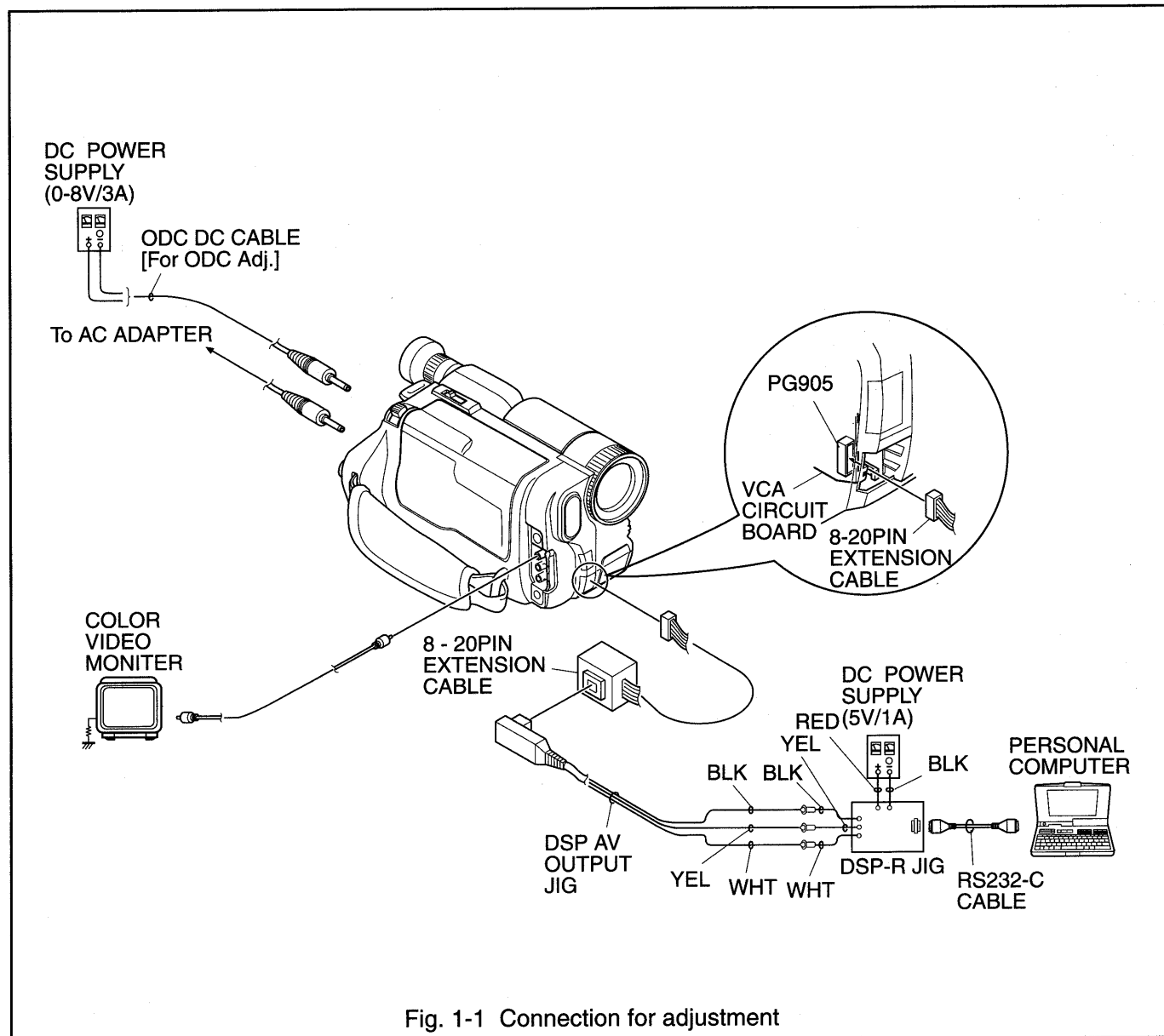


Fig. 1-1 Connection for adjustment

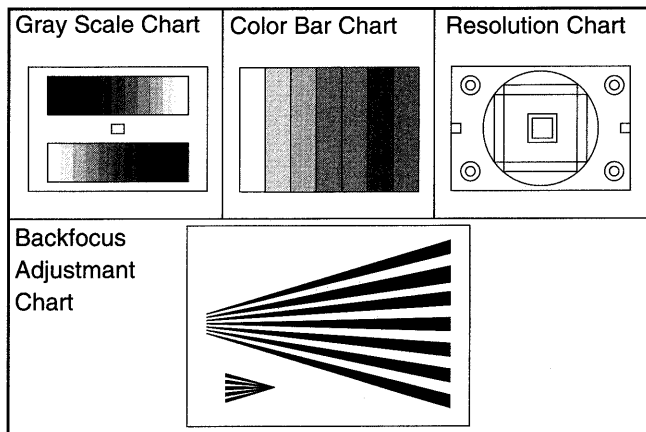
2. CAMERA SECTION ADJUSTMENT

2.1 Test Equipment Necessary for Adjustment

Oscilloscope (dual trace) [& Vectorscope]
Digital Voltmeter (DVM)
Color Video Monitor
Adjustment Floppy Disk
Personal Computer
Personal Computer 9-pin or 25-pin (RS232C) Cable
DSP-R Jig
DSP AV Output Jig
8 - 20 Pin Extension Cable
Light Box (3100°K)
Light Balancing Filter C12
DC Power Supply (DC5V/1A)
AC Adapter or
DC power supply (7V/3A) and ODC DC code

2.2 List of Charts for Camera Adjustment

Table 2-1



2.3 Adjustment Conditions

1. Check that the VCR section has been adjusted correctly before adjusting the camera section.
2. Use a light box with minimum flickering.
Control the color temperature of the light box strictly.
3. When using the video out jack to perform adjustment, be sure to terminate the video out jack with 75 ohms.
4. Place the light box approx. 30cm away from the camera (lens surface) when otherwise not specified.
5. Point the camera at the chart to full the video period when otherwise not specified.
6. Use the 10:1 probe of the oscilloscope when otherwise not specified.
7. When "Trigger the oscilloscope internally" is specified, set the time base of the oscilloscope to 10μs/div.

2.4 Preset Positions of Switches and Controls During Adjustment

Note: Some models do not have switches (modes) marked "\$".

CAM/OFF/VIDEO switch	"CAM" position
SUB POWER switch	"STANDBY" position
DC LIGHT switch [\$]	"OFF" position
DATE	Not display mode
TITLE	Not display mode
EFFECT	OFF mode
BLC	OFF mode
MENU	Not display
EIS on the MENU [\$]	OFF mode
PROGRAM AE [\$]	AUTO mode
FOCUS	Autofocus mode
FADE	OFF mode

Caution

1. Since the adjustment program is subject to change for improvements, computer displays may be different from those shown in this manual. In such cases, follow the computer displays for adjustment.
2. The computer displays may be different from those shown in this manual, depending on the destination of models and whether or not certain functions are provided. In such cases, follow the computer displays for adjustment.

2.5 Check After Replacing Major Components in the Camera Section

After replacing major components, perform adjustments, referring to the table below.

The following table shows the minimum adjustments required after major components are replaced.

The table below may not apply when several components are replaced, depending on the symptom of the defect.

Caution: When EEP ROM or the VCA circuit board is replaced, initialize the EEP ROM, referring to "2.6.3 Initial Setting by Model" then perform all the camera section and system control/servo circuits adjustments.

Table 3-2

ITEM No.	NAME OF ADJUSTMENT	NAME OF MAJOR COMPONENTS									
		SE Circuit Board	VCA Circuit Board	IC1001	IC0202	IC1104	IC1105	IC1201	IC1401 IC1402 IC1403	Lens Block	
INITIAL SETTING BY MODEL			●				●				
DIGITAL ADJUSTMENT PROCEDURE											
(1)	Auto Iris Control Adjustment	●	●	●		●	●	●		●	
(2)	White Balance Adjustment	●	●	●			●				
(3)	Chroma Gain Adjustment	●	●	●			●				
AUTOFOCUS ADJUSTMENT PROCEDURE											
(1)	Zoom Trace Adjustment	●	●				●			●	
(2)	AF Noise Level Adjustment	●	●				●			●	
STABILIZER ADJUSTMENT PROCEDURE [Except for TYPE 568, 563 (For ModelEE), 368, 360]		●	●				●		●		
SPOT NOISE ADJUSTMENT PROCEDURE		●	●				●				

2.6 Adjustment Procedure

- Notes:**
1. To complete adjustment, press the [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.
 2. The following describes an example of the instructions of the personal computer and the menu display; they are different depending on the personal computer manufacturer and model. Refer to the instruction manual of personal computer.
 3. When the error message appears during adjustment, refer to "4. Error Message". If a key is pressed after an error message appears, the ADJUSTMENT MENU is restored.

2.6.1 Connections for Adjustment

Connect the camera/recorder, DSP jig, personal computer, power supply, etc. as shown in Fig. 1-1.

Check that the camera/recorder is turned on.

2.6.2 How to Start the MAP

- (1) Turn the personal computer on and start the MS-DOS system.

Note: Refer to the instruction manual of the personal computer for how to start computer.

- (2) Load the adjustment floppy disk in to disk drive A and press **A**: [ENTER]. (Display 2-1)

- (3) Press **MAP IBM** [SPACE] **1** [ENTER]. (Display 2-2)

Note: When you use a personal computer with two serial interface connectors and connect the DSP jig to serial interface connector 2, press MAP_IBM 2.

- (4) Select the number according to the model.

(Display 2-3)

If [ESC] (escape) is pressed, the display before the MAP starts (MS-DOS) is restored.

Notes: 1. If the required model is not found, press the **P** key and select the model from the next screen.
2. If you select number without a model name by mistake, the message shown in "MESSAGE WHEN OPERATED BY MISTAKE" will appear in the computer's display (Display 2-4). Press any key to return the display to MODEL SELECT display.

- (5) Press **Y** key. (Display 2-5)

If **N** key is pressed, the computer's display returns to MODEL SELECT display.

- (6) Refer to display 2-6.

2.6.3 Initial Setting by Model

Before Starting Initial Setting

1. This item describes how to initialize the EEP ROM. Be sure to perform this item after replacing EEP ROM or the VCA circuit board.

When other components are replaced, normally, it is not necessary to initialize the EEP ROM.

2. Be sure to perform the following adjustments after completing the initial setting.

2.6.4 Digital Adjustment Procedure

2.6.5 Autofocus Adjustment Procedure

2.6.6 Stabilizer Adjustment Procedure
[Except for TYPE 568, 563 (For Model EE), 368, 360]

2.6.7 Spot Noise Adjustment Procedure

2.7 Color LCD Monitor Adjustment}
[Except for TYPE 660, 368, 360]

3.5 System Control/Servo Circuits Adjustment

- (1) Start the MAP.

- (2) Refer to display 2-6.

- (3) Press **A** key.

- (4) Refer to display 3-1.

- (5) Press **Y** key to start.

Note: Press **N** to return to MAIN MENU display.

- (6) Perform adjustment according to the computer display hereafter.

See "4. Error Messages" if an error message appears on the computer display.

Display & Figs

Display 2-1

```
C>A:
A>
```

Display 2-2

```
C>
A>MAP_IBM 1
```

Display 2-3

```
*****
MODEL SELECT
*****
[1]      xxxxxxxx
[2]      xxxxxxxx
[3]      xxxxxxxx
[4]      xxxxxxxx
[5]      xxxxxxxx
[P]      NEXT SELECTION
[ESC]    END
Please select the type of the set.
Press [1] - [5] or [P] or [ESC]
```

Display 2-4

MESSAGE WHEN OPERATED BY
MISTAKE

CAN NOT FIND THE DATA FILE
**** PRESS ANY KEY ****

Display 2-5

Selected model is x x x x x x
Are you sure ? (Y/N)

Display 2-6

MAIN MENU

```
*****
MANUAL ADJUSTMENT PROGRAM
*****
[A]      DATA INITIALIZE
[B]      ADJUSTMENT
[C]      VCR ADJUSTMENT
[D]      AUTO FOCUS
[E]      STABILIZER
[F]      SPOT NOISE
[G]      LCD
[ESC]    END
Please select [A] - [G] or [ESC]
```

Display 3-1

« DATA WRITING »
START TO SEND DATA. (Y/N)

2.6.4 Digital Adjustment Procedure

Before Starting Adjustment

When EEP ROM or the VCA circuit board is replaced, initialize the EEP ROM, referring to "2.6.3 Initial Setting By Model" then perform all the digital adjustments.

- (1) Start the MAP.
- (2) Refer to display 2-6.
- (3) Press **B** key.
- (4) Refer to display 4-1.
- (5) Select the number of the required adjustment.

Notes: 1. If [ESC] (escape) is pressed, the computer's display returns to MAIN MENU display.
2. To complete adjustment, press the [ESC] (escape) twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

(1) Auto Iris Control Adjustment

Purpose:

To set the iris control data.

Incompleted Phenomenon:

The picture becomes too bright.

The picture becomes too dark.

Condition:

Point the camera at the light box without a chart to full the screen (at wide-angle).

Procedure:

- 1) Refer to display 4-1.
- 2) Press **1** key.
Perform adjustment according to the computer display hereafter.
See "4. Error Messages" if an error message appears on the computer display.

- 3) Refer to display 4-2.
- 4) Press any key to return to ADJUSTMENT MENU display.
- 5) Turn the power off for 5 seconds and then on again.

(2) White Balance Adjustment

Purpose:

To set white balance under the color temperature which becomes a reference for the auto white balance circuit.

Incompleted Phenomenon:

Color of the subject is different from that of the picture.
A white subject is not seen as white.

Test Point:

Video Out Jack

Condition:

Attach a C12 filter.

Point at a gray scale chart (at wide-angle).

Procedure:

- 1) Refer to display 4-1.
- 2) Press **2** key.
- 3) Refer to display 4-3.
- 4) Model HA:
Press **0** (ZERO) **A** to input the data.
Model EA:
Press **0** (ZERO) **C** to input the data.
Model HE:
Press **0** (ZERO) **9** to input the data.
Model EE:
Press **0** (ZERO) **D** to input the data.
- 5) Press [Enter] key, and the display changes as follows.

Display & Figs

Display 2-6

MAIN MENU

***** MANUAL ADJUSTMENT PROGRAM *****

[A] DATA INITIALIZE
[B] ADJUSTMENT
[C] VCR ADJUSTMENT
[D] AUTO FOCUS
[E] STABILIZER
[F] SPOT NOISE
[G] LCD
[ESC] END

Please select [A] - [G] or [ESC]

Display 4-1

ADJUSTMENT MENU

***** ADJUSTMENT *****

[1] AUTO IRIS CONTROL
[2] WHITE BALANCE
[3] CHROMA GAIN
[ESC] RETURN TO MAIN MENU
Please select [1]- [3] or [ESC]

Display 4-2

ADJUSTMENT FINISHED
PRESS ANY KEY

Display 4-3

« WHITE BALANCE ADJUSTMENT »
INPUT DATA OF OFFSET
FOR R-B --> 00

Display 4-4

« WHITE BALANCE ADJUSTMENT »
INPUT DATA OF OFFSET
FOR Mg-G --> 00

6) Refer to display 4-4.

7) Model HA:

Press **0** (ZERO) **A** to input the data.

Model EA:

Press **0** (ZERO) **C** to input the data.

Model HE:

Press **0** (ZERO) **B** to input the data.

Model EE:

Press **0** (ZERO) **D** to input the data.

8) Press [Enter] key.

Perform adjustment according to the computer display hereafter.

See "4. Error Messages" if an error message appears on the computer display.

Condition:

Attach a C12 filter.

Point at a color bar chart.

Procedure:

1) Refer to display 4-1.

2) Press **3** key.

3) Refer to display 4-5.

4) When Using an Oscilloscope:

Press the **U** and **D** keys to set the red level to around 470mVp-p.

Press the [Ctrl] key and hold it down, then press the **U** and **D** keys so the red level is $470\text{mV} \pm 20\text{mVp-p}$. (Fig. 2-1)

When Using a Vectorscope:

Press the **U** and **D** keys to set the red vector to around 170% of the burst.

Press the [Ctrl] key and hold it down, then press the **U** and **D** keys so the red vector is $170\% \pm 5\%$. (Figs. 2-2, 2-3)

5) Press [Enter] key, and the display changes as 4-6 and 4-7.

6) Press any key to return to ADJUSTMENT MENU display.

(3) Chroma Gain Adjustment (Figs. 2-1, 2-2, 2-3)

Purpose:

To set the color saturation under the reference color temperature.

Incompleted Phenomenon:

Color of the picture is denser than that of the subject.

Color of the picture is lighter than that of the subject.

Equipment/Jig:

Oscilloscope (Vectorscope)

Test Point:

Video Out Jack

Display & Figs

Display 4-1

ADJUSTMENT MENU

```
*****
ADJUSTMENT
*****
[1]  AUTO IRIS CONTROL
[2]  WHITE BALANCE
[3]  CHROMA GAIN
[ESC] RETURN TO MAIN MENU
Please select [1]- [3] or [ESC]
```

Display 4-6

« ADJUSTMENT OF CHROMA GAIN »
DATA WRITING INTO EEPROM.

Display 4-7

« ADJUSTMENT OF CHROMA GAIN »
ADJUSTMENT FINISHED.
PRESS ANY KEY.

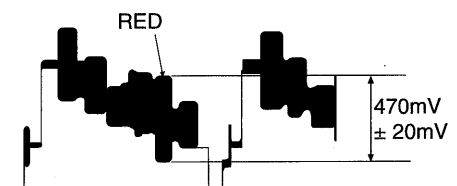


Fig. 2-1

Display 4-4

« WHITE BALANCE ADJUSTMENT »
INPUT DATA OF OFFSET
FOR Mg-G --> 00

Display 4-5

« ADJUSTMENT OF CHROMA GAIN »
ROUGH ADJUSTMENT
[U] CHROMA GAIN UP
[D] CHROMA GAIN DOWN
FINE ADJUSTMENT
[Ctrl] + [U] CHROMA GAIN UP
[Ctrl] + [D] CHROMA GAIN DOWN
[ENTER] SAVE & RETURN TO MENU
[ESC] QUIT

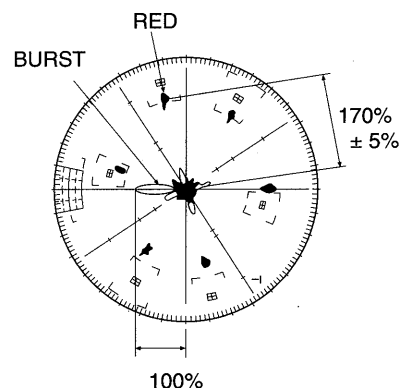


Fig. 2-2 [Model HA, EA]

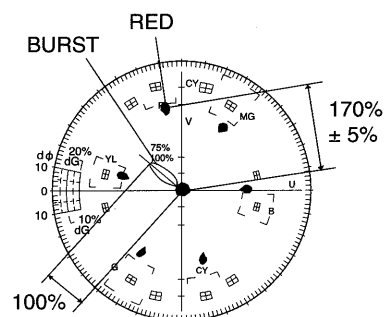


Fig. 2-3 [Model HE, EE]

2.6.5 Autofocus Adjustment Procedure

Before Starting Adjustment

Be sure to perform this adjustment after replacing or initializing the lens block or VCA circuit board (EEPROM).

- (1) Start the MAP.
- (2) Refer to display 2-6.
- (3) Press **D** key.
- (4) Refer to display 5-1.
- (5) Select the number of the required adjustment.

Note: To complete adjustment, press the [ESC] (escape) twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

(1) Zoom Trace Adjustment

Purpose:

To set the out-of-focus correction level during zooming.

Incompleted Phenomenon:

Focus is lost during zooming.

Equipment/Jig:

Color Video Monitor
Backfocus Chart

Test Point:

Video Out Jack

Condition:

Point at the backfocus chart, 1500 ± 5 mm away from the lens surface.

Light the chart with 200-400 lux.

Caution When Adjustment:

- 1) Measure the distance between the chart and lens surface precisely.
- 2) Place the chart as parallel as possible to the lens surface.
- 3) The backfocus chart should always be at the center of the monitor screen when the zoom is set to the wide-angle and telephoto ends.
- 4) The zoom trace adjustment procedure is completed within 2 minutes after it is selected.
- 5) Do not place any obstruction between the lens and chart during adjustment.

Procedure:

- 1) Refer to display 5-1.
- 2) Press **1** key.
Perform adjustment according to the computer display hereafter.
See "4. Error Messages" if an error message appears on the computer display.

(2) AF Noise Level Adjustment

Purpose:

To set the noise level in the autofocus circuit.

Incompleted Phenomenon:

It takes time until a subject is brought into focus.

Correct focus is not obtained.

Equipment/Jig:

Color Video Monitor

Test Point:

Video Out Jack

Condition:

Set the focus to AUTO.

Point at a light box without a chart inserted at a distance of up to 10cm.

Caution When Adjustment:

- 1) Place the light box as parallel as possible to the lens surface.
- 2) The AF noise level adjustment procedure will be completed within thirty seconds after it is selected.

Procedure:

- 1) Refer to display 5-1.
- 2) Press **2** key.
Perform adjustment according to the computer display hereafter.
See "4. Error Messages" if an error message appears on the computer display.

Display & Figs

Display 2-6

MAIN MENU

```
*****
MANUAL ADJUSTMENT PROGRAM
*****
[A]      DATA INITIALIZE
[B]      ADJUSTMENT
[C]      VCR ADJUSTMENT
[D]      AUTO FOCUS
[E]      STABILIZER
[F]      SPOT NOISE
[G]      LCD
[ESC]    END
Please select [A] - [G] or [ESC]
```

Display 5-1

AF ADJ. MENU

```
*****
AUTO FOCUS ADJUSTMENT
*****
[1]      ADJUSTMENT OF ZOOM/
          FOCUS TRACKING
[2]      ADJUSTMENT OF
          AF NOISE LEVEL
[ESC]    RETURN TO MENU
Please select [1], [2] or [ESC]
```

2.6.6 Stabilizer Adjustment Procedure

[Except for TYPE 568, 563 (For Model EE), 368, 360]

Before Starting Adjustment

1. Be sure to perform this adjustment after replacing or initializing the SE circuit board and VCA circuit board (EEPROM).
2. This item describes how to rewrite the stabilizer data. The average of the stabilizer data will be written.

- (1) Start the MAP.
- (2) Refer to display 2-6.
- (3) Press **E** key.
- (4) Refer to display 6-1.
- (5) Press **Y** key.
- (6) Refer to display 6-2.
- (7) The stabilizer data is rewritten automatically.
- (8) Press any key to return to MAIN MENU display.

Note: To complete adjustment, press the [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

2.6.7 Spot Noise Adjustment Procedure

Before Starting Adjustment

1. The spot noise is identified as the fine white noise that appears when the lens cap is attached after the power is turn on.
2. Perform this adjustment only for products with which spot noise occurs. (However, there is no problem even if products free from spot noise are adjusted.)
3. After replacing the CCD image sensor or VCA circuit board (EEPROM), check whether or not spot noise occurs and then proceed with adjustment.

- (1) Start the MAP.
- (2) Refer to display 2-6.
- (3) Cap the lens.
- (4) Connect the color video monitor to video out.

(5) Except for TYPE 568, 563 (For Model EE), 368, 360:

Press **F** key.

For TYPE 568, 563 (For Model EE), 368, 360:

Press **E** key.

Perform adjustment according to the computer display hereafter.

See "4. Error Messages" if an error message appears on the computer display.

Note: To complete adjustment, press the [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

Display & Figs

Display 2-6

MAIN MENU

```
*****
MANUAL ADJUSTMENT PROGRAM
*****
[A]      DATA INITIALIZE
[B]      ADJUSTMENT
[C]      VCR ADJUSTMENT
[D]      AUTO FOCUS
[E]      STABILIZER
[F]      SPOT NOISE
[G]      LCD
[ESC]    END
Please select [A] - [G] or [ESC]
```

Display 6-1

« DATA WRITING »
START TO SEND DATA (Y/N)

Display 6-2

FINISHED WRITING DATA.
PRESS ANY KEY.

2.7 Color LCD Monitor Adjustment [Except for TYPE 660, 368, 360]

2.7.1 Adjustment Procedure

Before Starting Adjustment

1. Be sure to perform this adjustment after replacing the LCD unit, components on the LCD circuit board or the VCA circuit board (EEPROM), or initializing the EEPROM.
2. Picture appears on the LCD monitor when the monitor is open. Perform adjustment with the LCD monitor open (SW733 on the CON board set to OFF).

(1) Start the MAP.

(2) Refer to display 2-6.

(3) Except for TYPE 568, 563 (For Model EE)

Press **G** key.

For TYPE 568, 563 (For Model EE)

Press **F** key.

(4) Refer to display 7-1.

(5) Select the number of the required adjustment.

- Notes:**
1. To complete adjustment, press the [ESC] (escape) twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.
 2. When an adjustment item is selected from the color LCD adjustment menu, the adjustment mode will be automatically set, and the signal necessary for adjustment will be supplied from the system control μ P.

(1) Flicker Adjustment

Purpose:

To minimize flickering on the LCD screen:

Incompleted Phenomenon:

Flickering is present in the picture.

Condition:

Set the CAM/OFF/VIDEO switch to VIDEO position.

Load the alignment tape and it the playback (color bar section).

Procedure:

1) Refer to display 7-1.

2) Press **1** key.

3) Refer to display 7-2.

4) Press the **U** and **D** keys until the picture on the LCD screen is optimal quality.

5) After setting is completed, press the [RETURN (ENTER)] key.

Display & Figs

Display 2-6

MAIN MENU

***** MANUAL ADJUSTMENT PROGRAM *****

[A] DATA INITIALIZE
[B] ADJUSTMENT
[C] VCR ADJUSTMENT
[D] AUTO FOCUS
[E] STABILIZER
[F] SPOT NOISE
[G] LCD
[ESC] END

Please select [A] - [G] or [ESC]

Display 7-1

LCD ADJ. MENU

***** LCD ADJUSTMENT *****

[1] FLICKER
[ESC] RETURN TO MENU
Please select [1] or [ESC]

Display 7-2

xxxxxxx

[U] UP
[D] DOWN
[RETURN] SAVE & RETURN TO MENU
[ESC] RETURN TO MENU
Please select [U], [D],
[RETURN] or [ESC]

3. VCR SECTION ADJUSTMENT

3.1 Test Equipment and Alignment Tapes Necessary for Adjustment

Test Equipment, Jigs etc.

Digital Voltmeter (DVM)
Color Video Monitor
DC Power Supply (DC 0 - 8V/3A)
DC Power Supply (DC 5V/1A)
Adjustment Floppy Disk
Personal Computer
Personal Computer 9-pin or 25-pin (RS232C) Cable
DSP-R Jig
DSP AV Output Jig
8 - 20 Pin Extension Cable
ODC DC Cord

Alignment Tape

Alignment Tape
Blank Tape

Caution: After replacing the parts, check each adjustment. If you find the items necessary to be adjusted, remove the corresponding laser trimming resistors and replace them with variable resistors for adjustment.

ITEM No.	NAME OF ADJUSTMENT	NAME OF MAJOR COMPONENTS		
		VCA Circuit Board	Cylinder	IC0901
SYSTEM CONTROL/SERVO CIRCUITS ADJUSTMENT				
(1)	Power Shut Off level Adjustment	●		●
(2)	Head Switching Point Adjustment	●	●	●

3.2 Adjustment Condition

1. Check that the camera, LCD monitor and EVF sections has been adjusted correctly before adjusting the VCR section.
2. Connect this unit, a power supply and a color video monitor as shown in Fig. 1-1.
3. Use the 10:1 probe of the oscilloscope when other not specified.
4. When "Record mode" is specified, load a blank tape and set the 8mm video camera/recorder to the record mode by the following procedure.
 - 1) Set the CAM/OFF/VIDEO switch to the CAM position.
 - 2) Set the SUB POWER switch to STANDBY position.
 - 3) Press the REC START/STOP button on the unit (or REC START/STOP button on the remote control).
5. Ground of test equipment: Pre-Amp Shield (GND).

3.3 Preset Positions of Switches and Controls During Adjustment

CAM/OFF/VIDEO switch "VIDEO" position
TITLE Not Display mode
PAL CONV. on the MENU OFF mode

3.4 Check After Replacing Major Components in the VCR Section

After replacing major components, perform checks, referring to the table below.

The following table shows the minimum adjustments required after major components are placed.

The table below may not apply when several components are replaced, depending on the symptom of the defect.

3.5 System Control/Servo Circuits Adjustment

Before Starting Adjustment

1. System control/servo circuits adjustment also needs a personal computer. Connect the camera/recorder, jigs, power supply, etc. in the same way as in camera section adjustment.
2. Be sure to perform this adjustment after replacing or initializing the EEPROM and VCA circuit board.
3. When an error message appears during adjustment, refer to "4. Error Message".
4. If [ESC] (escape) is pressed, the computer's display returns to MAIN MENU display.
5. To complete adjustment, press to [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jigs.

- (1) Start the MAP.
- (2) Refer to display 2-6.
- (3) Press **C** key.
- (4) Refer to display 8-1.
- (5) Select the number of the required adjustment.

(1) Power Shut Off Level (ODC: Over Discharge Control) Adjustment

Purpose:

To set the minimum voltage required to operate the camera/recorder.

Incompleted Phenomenon:

The usable time of the battery becomes short.

The camera/recorder doesn't operate normally.

Equipment/Jig:

DVM

DC Power Supply (0 - 8V)

Blank Tape

ODC DC Cord

Condition:

Connect the camera, LCD monitor and EVF sections.

Supply power ($8.0V \pm 0.5V$) to DC IN via ODC DC cord.

LCD monitor open. (LCD ON)

Cap the lens.

Load the blank tape.

Procedure:

- 1) Refer to display 8-1.
- 2) Press **1** key.
- 3) Refer to display 8-2.
- 4) Set the voltage of the power supply to $5.8V \pm 0.05V$.
- 5) Press any key.
- 6) Refer to display 8-3.
- 7) Press any key to return to VCR ADJ. MENU display.

(2) Head Switching Point Adjustment

Note: Be sure to perform this adjustment after replacing the cylinder assembly and VCA circuit board.

Purpose:

To set the switching point of the video heads during playback.

Incompleted Phenomenon:

Vertical jitter occurs.

Switching noise appears across the bottom of the monitor screen.

Equipment/Jig:

Alignment Tape

Condition:

Playback the alignment tape.

Procedure:

- 1) Refer to display 8-1.
- 2) Press **2** key.
- 3) Refer to displays 8-4, 8-5 and 8-6.
- 4) Press any key to return to VCR ADJ. MENU display.
- 5) Turn the power off.

Display & Figs

Display 2-6

MAIN MENU

***** MANUAL ADJUSTMENT PROGRAM *****

- | | |
|-------|-----------------|
| [A] | DATA INITIALIZE |
| [B] | ADJUSTMENT |
| [C] | VCR ADJUSTMENT |
| [D] | AUTO FOCUS |
| [E] | STABILIZER |
| [F] | SPOT NOISE |
| [G] | LCD |
| [ESC] | END |

Please select [A] - [G] or [ESC]

Display 8-1

VCR ADJ. MENU

***** VCR ADJUSTMENT *****

- | | |
|-----|----------------------------------|
| [1] | ADJUSTMENT OF ODC |
| [2] | ADJUSTMENT OF
SWITCHING POINT |

[ESC] RETURN TO MAIN MENU

Please select [1], [2] or [ESC]

Display 8-2

« SET UP OF ODC
ADJUSTMENT STARTED »
PRESET POSITION OF
'CAMERA/OFF/VCR' SWITCH
'VCR' POSITION
SET POWER SOURCE AT 5.8 (+/- 0.05)

Display 8-3

« SETUP OF ODC
ADJUSTMENT COMPLETED »
« ODC ADJUSTMENT STARTED »
« ODC ADJUSTMENT COMPLETED »
PRESS ANY KEY.

Display 8-4

« ADJUSTMENT OF
SWITCHING POINT »
PRESET POSITIONS OF
'CAMERA/OFF/VCR' SWITCH
'VCR' POSITION
PRESS ANY KEY

Display 8-5

SET UP OF SW POINT
ADJUSTMENT STARTED.
SET UP OF SW POINT
ADJUSTMENT COMPLETED.
SW POINT ADJUSTMENT STARTED.

Display 8-6

SW POINT ADJUSTMENT
DATA CHECKING.
FINISHED WRITING DATA.
ADJUSTMENT FINISHED.
PRESS ANY KEY.

4. ERROR MESSAGE

4.1 Camera Digital Adjustments

ERROR MESSAGE	COUNTERMEASURE
ERROR OCCURRED. IRIS TROUBLE PRESS ANY KEY	· Check whether or not power is supplied. · Check the values of the iris drive circuit. · Defective soldering, damage to pattern, etc. in the above circuit. · Check the iris block and replace it if necessary.
ERROR OCCURRED ON dax ADJUSTMENT PRESS ANY KEY	· Check the values in the hall amp circuit. · Defective soldering, damage to pattern, etc. in the above circuit.
D RANGE OVER. ERROR ON dax ADJUSTMENT PRESS ANY KEY.	· Check the values in the hall amp circuit. · Defective soldering, damage to pattern, etc. in the above circuit.
ERROR OCCURRED ON da0 and da1 ADJUSTMENT PRESS ANY KEY	· Check the values in the hall amp circuit and its peripheral circuits. · Defective soldering, damage to pattern, etc. in the above circuits.
FILE NOT FOUND !!!! PRESS ANY KEY	· The adjustment program (file) cannot be found. · Check the adjustment floppy disk and replace it if necessary.
FILE OPEN ERROR !!!! PRESS ANY KEY	· The adjustment program (file) does not start. · Check the adjustment floppy disk and replace it if necessary.
ERROR OCCURRED ON C DUTY ADJUSTMENT PRESS ANY KEY ERROR OCCURRED ON FDET ADJUSTMENT PRESS ANY KEY	· Check the values of the iris drive circuit. · Defective soldering, damage to pattern, etc. in the above circuit. · Supply power again and re-adjust. · Check the values in the hall amp circuit. · Defective soldering, damage to pattern, etc. in the above circuit.
ERROR OCCURRED. ZOOM DOES NOT WORK PRESS ANY KEY	· Supply power again and re-adjust.
TOO BRIGHT PRESS ANY KEY	· The subject is too bright. · Move the camera further away from the light box.
TOO DARK PRESS ANY KEY	· The subject is too dark. · Check the light box. · Move the camera closer to the light box.
D RANGE OVER ERROR ON HALL AMP IRIS CANNOT OPEN ANY MORE PRESS ANY KEY	· Supply power again and re-adjust. · The subject is too dark. · Check the light box. · Move the camera closer to the light box. · Check the values in the hall amp circuit. · Defective soldering, damage to pattern, etc. in the above circuit.
STAURATION ERROR. TOO BRIGHT PRESS ANY KEY	· The subject is too bright. · Move the camera further away from the light box.
CAN'T ADJUST WHITE BALANCE PLEASE RETRY PRESS ANY KEY	· The subject is too bright or too dark. · Check the light box. · Move the camera closer to or away from the light box. · Supply power again and re-adjust.

4.2 Autofocus Adjustment

ERROR MESSAGE	COUNTERMEASURE
TIME OUT ERROR ON FOCUS	• Check the conditions of subject. • If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. • Refer to (1) of TROUBLESHOOTING OF AUTOFOCUS.
TIME OUT ERROR ON ZOOM	• If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. • Refer to (2) of TROUBLESHOOTING OF AUTOFOCUS.
TIME OUT ERROR ON AF STEP	• Check the conditions of subject. • If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. • Refer to (1) of TROUBLESHOOTING OF AUTOFOCUS.
AF LIMIT OVER	• Check the conditions of subject. • If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. • Refer to (2) of TROUBLESHOOTING OF AUTOFOCUS.
AF ERROR	• If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. • Refer to (1) of TROUBLESHOOTING OF AUTOFOCUS.
TOO DARK	• Insufficient lighting. Check the subject.

4.3 Spot Noise Adjustment

ERROR MESSAGE	COUNTERMEASURE
ERROR!! SPOT NOISE COMPENSATION IS STOPPED BY INITIAL DATA. PLEASE CHECK THE EEPROM. PRESS ANY KEY.	• Spot noise compensation is inhibited by the data in the EEPROM. • Turn the power on again. • Data in the EEPROM is defective. (Initialize it.) • Check the EEPROM, and if necessary, replace it.
ERROR!! THRESHOLD DATA ERROR. PLEASE CHECK THE EEPROM. PRESS ANY KEY.	• Turn the power on again. • Data in the EEPROM is defective. (Initialize it.) • Check the EEPROM, and if necessary, replace it.
ERROR!! THE SPOT NOISE IS TOO MANY. CAN'T COMPENSATE ANY MORE. PRESS ANY KEY.	• The amount of spot noise that can be compensated reaches the limit. • Turn the power on again. • Check the CCD image sensor, and if necessary, replace it.

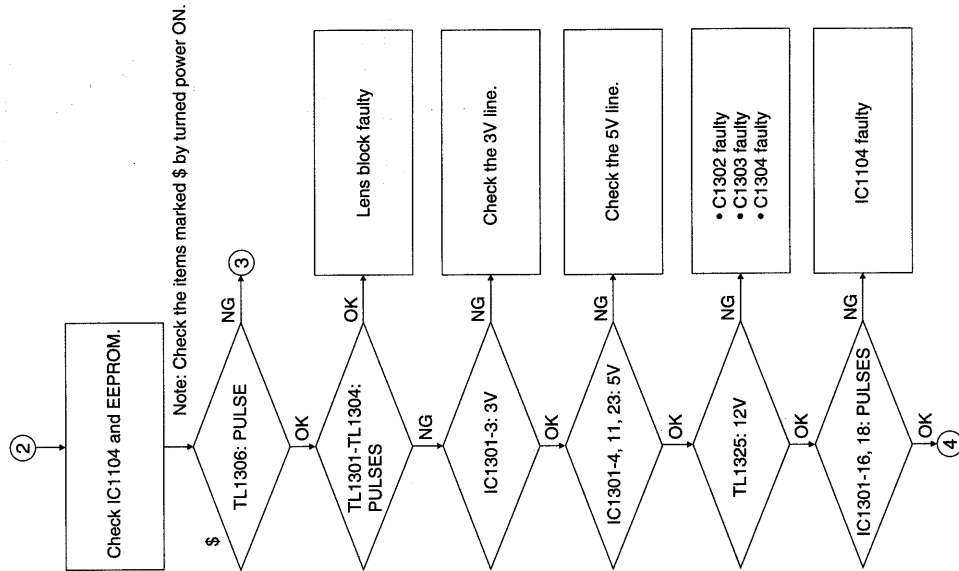
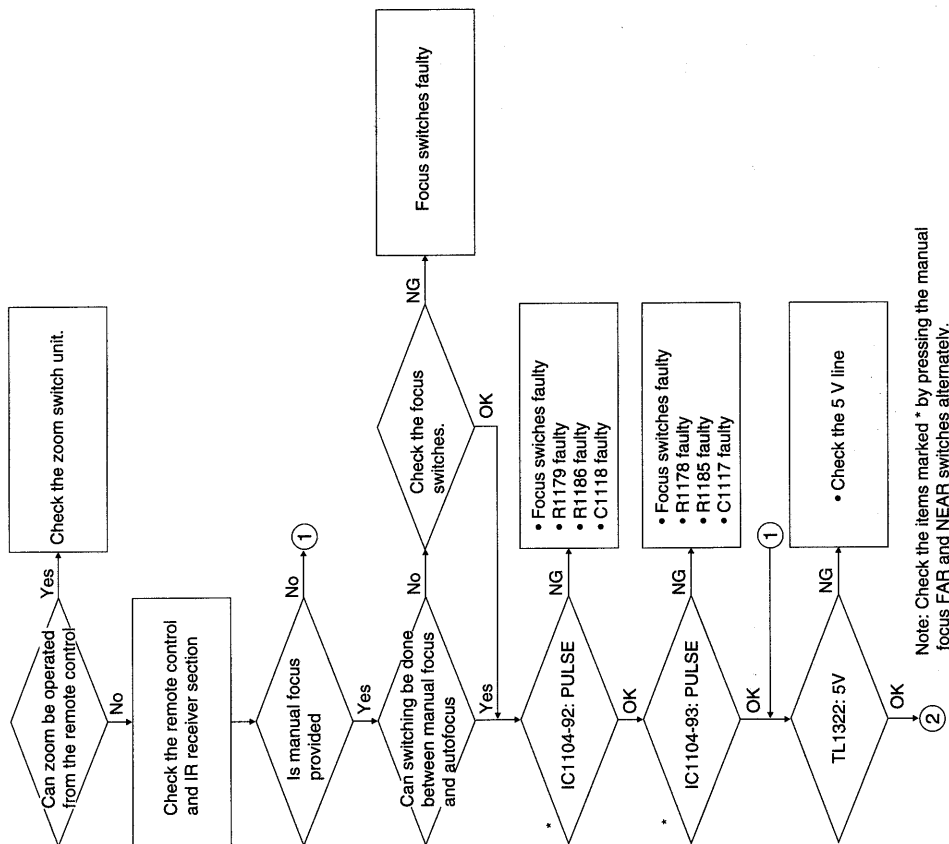
4.4 VCR Adjustment

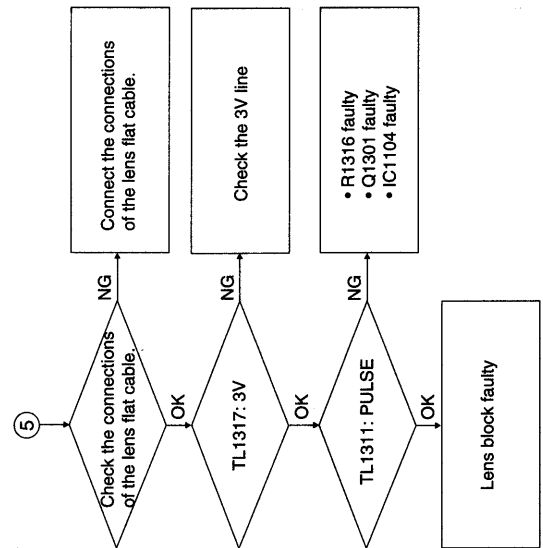
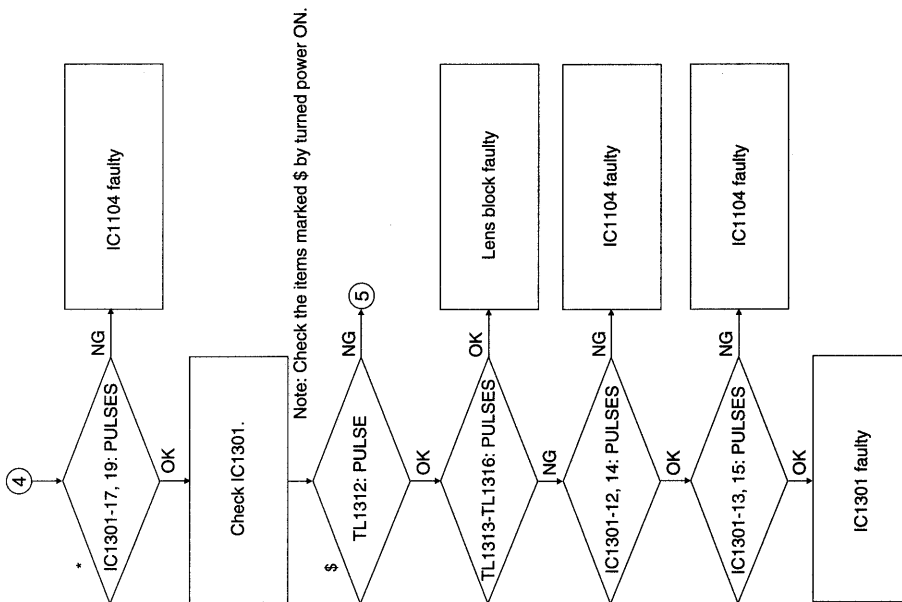
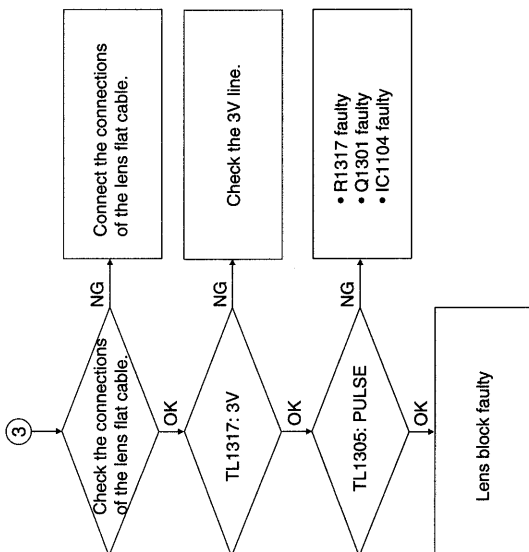
ERROR MESSAGE	COUNTERMEASURE
ERROR: SWP_TEST>DAT FILE NOT FOUND!	· The adjustment program cannot be found. · Check the adjustment floppy disk and replace it if necessary.
ERROR: INVALID MODEL PRESS ANY KEY	· A wrong model has been selected. · The adjustment program cannot be found. · Check the adjustment floppy disk and replace it if necessary.
THIS MODEL NEED NOT BE ADJUSTED PRESS ANY KEY	· A wrong model has been selected. · A product that needs analog adjustment is connected.
ADJUSTMENT INCOMPLETED PRESS ANY KEY	· The value set by adjustment defective. · Re-adjust. · Check cylinder. · Check the alignment tape. · Check whether or not the usual operation is done correctly.
RETRY ADJUSTING. PRESS ANY KEY	· Supply power again and re-adjust.
CAMERA IS NOT READY	· Check whether or not power is supplied.
ERROR OCCURRED CAN'T PLAY BACK PRESS ANY KEY	· No playback video. · Check the playback signal.
ERROR OCCURRED NO V.SYNC FOUND PRESS ANY KEY	· Vertical sync loss. · Check the vertical sync signal.
INVALID MODEL PRESS ANY KEY	· A wrong model has been selected. · The adjustment program cannot be found. · Check the adjustment floppy disk and replace it if necessary.
ERROR OCCURRED CAN'T RECORD PRESS ANY KEY	· No video recording. · Check the recording signal.

Memo

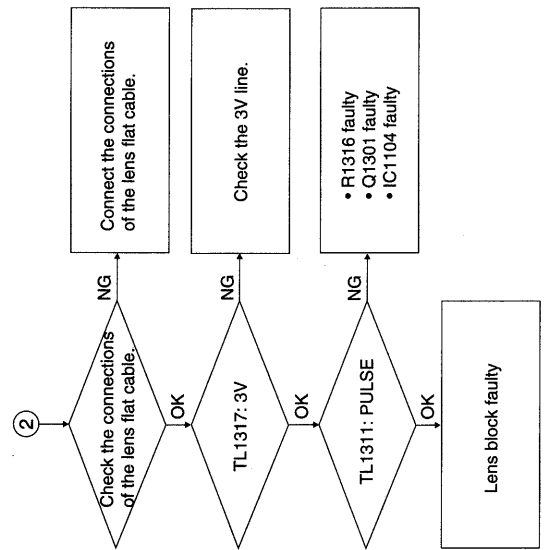
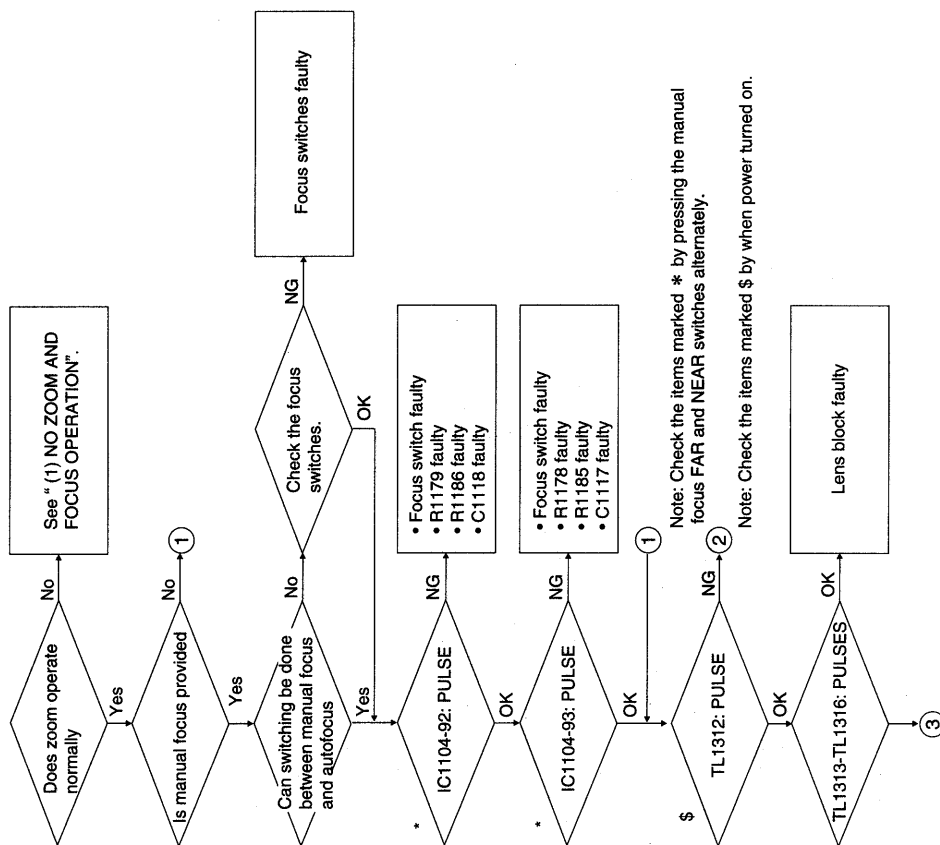
5. TROUBLESHOOTING OF AUTOFOCUS

(1) NO ZOOM AND FOCUS OPERATION

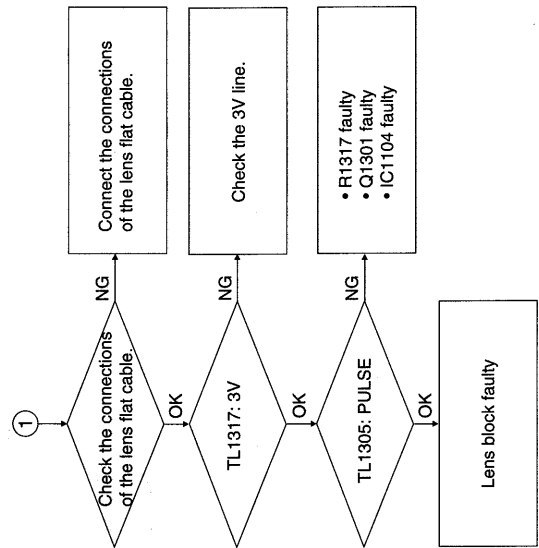
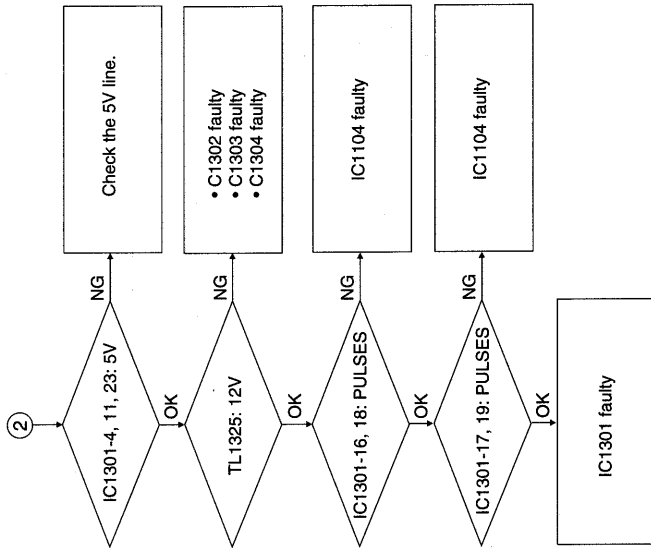
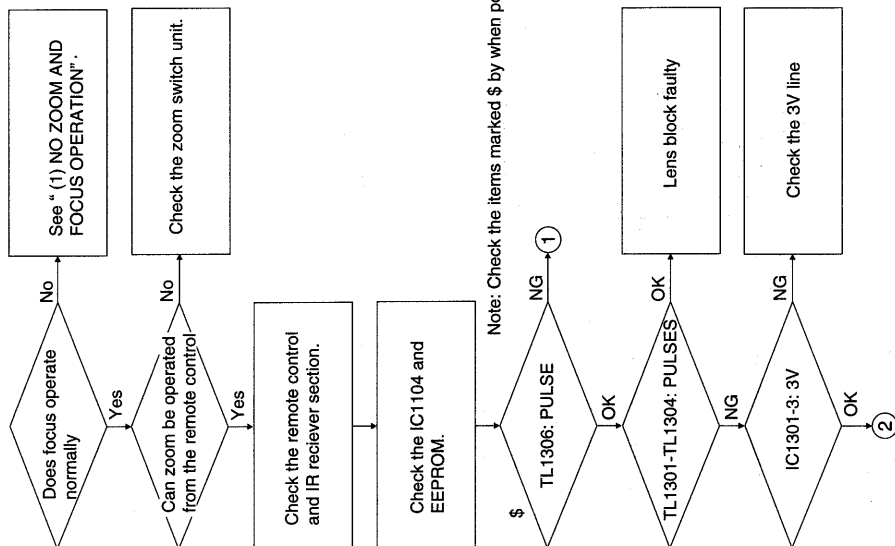




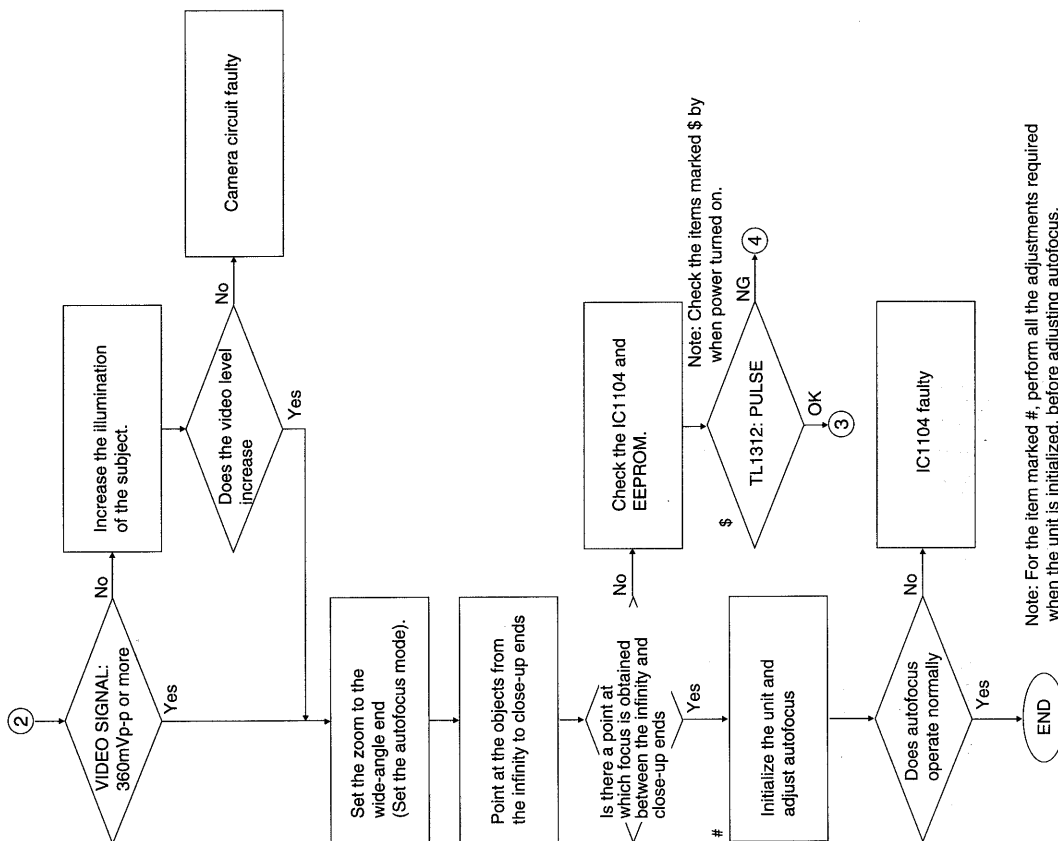
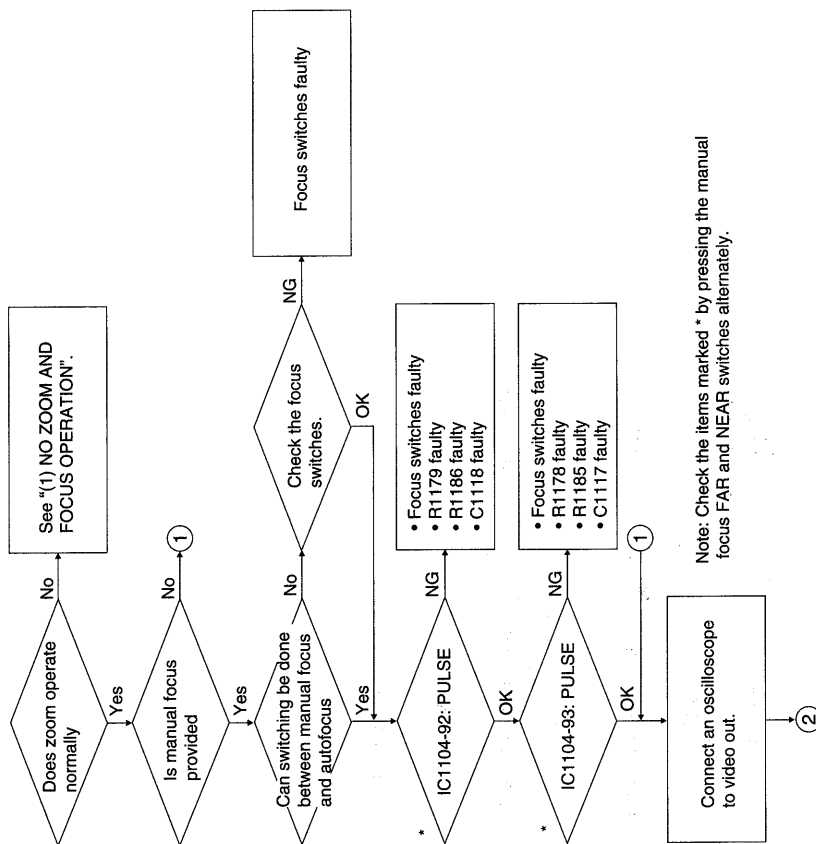
(2) NO FOCUS LENS OPERATION

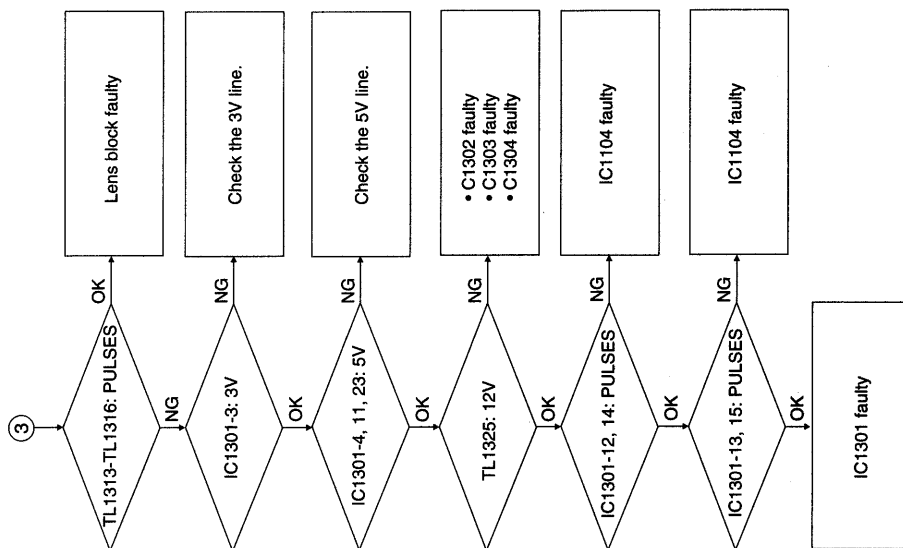
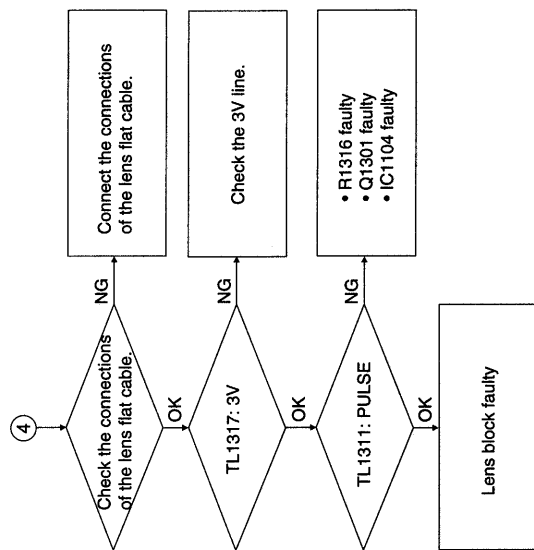


(3) NO ZOOM OPERATION

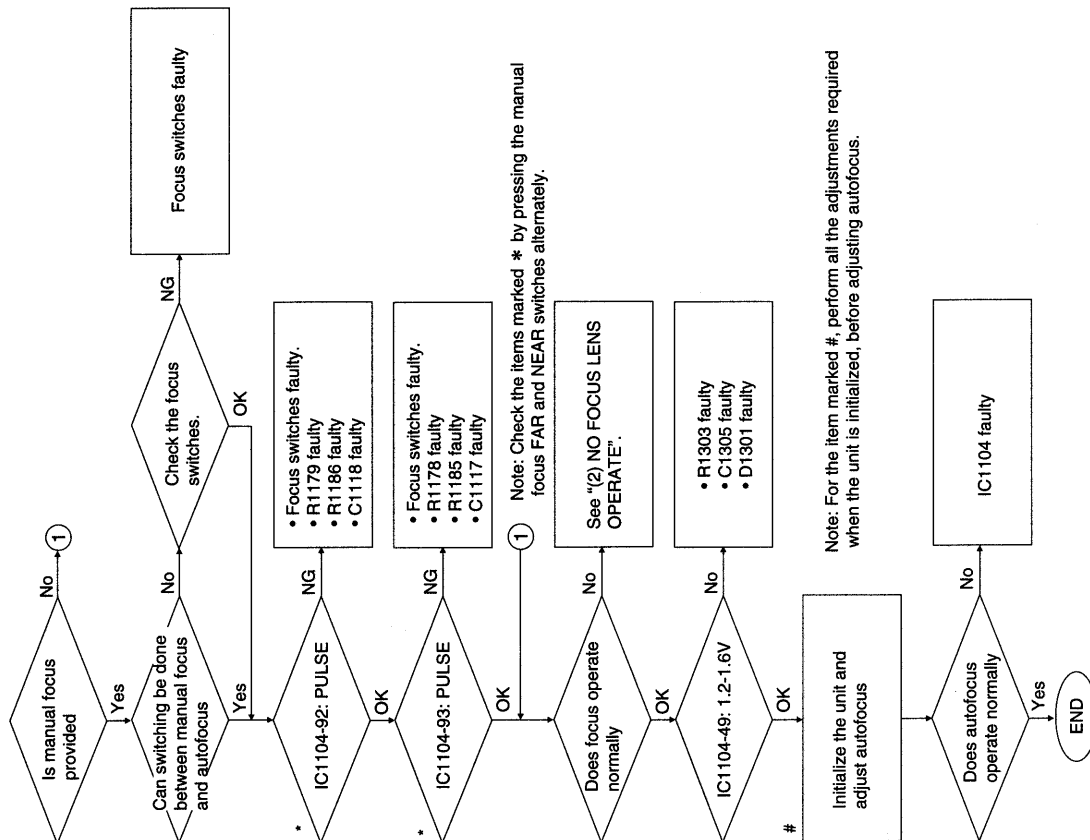


(4) NO AUTOFOCUS OPERATION



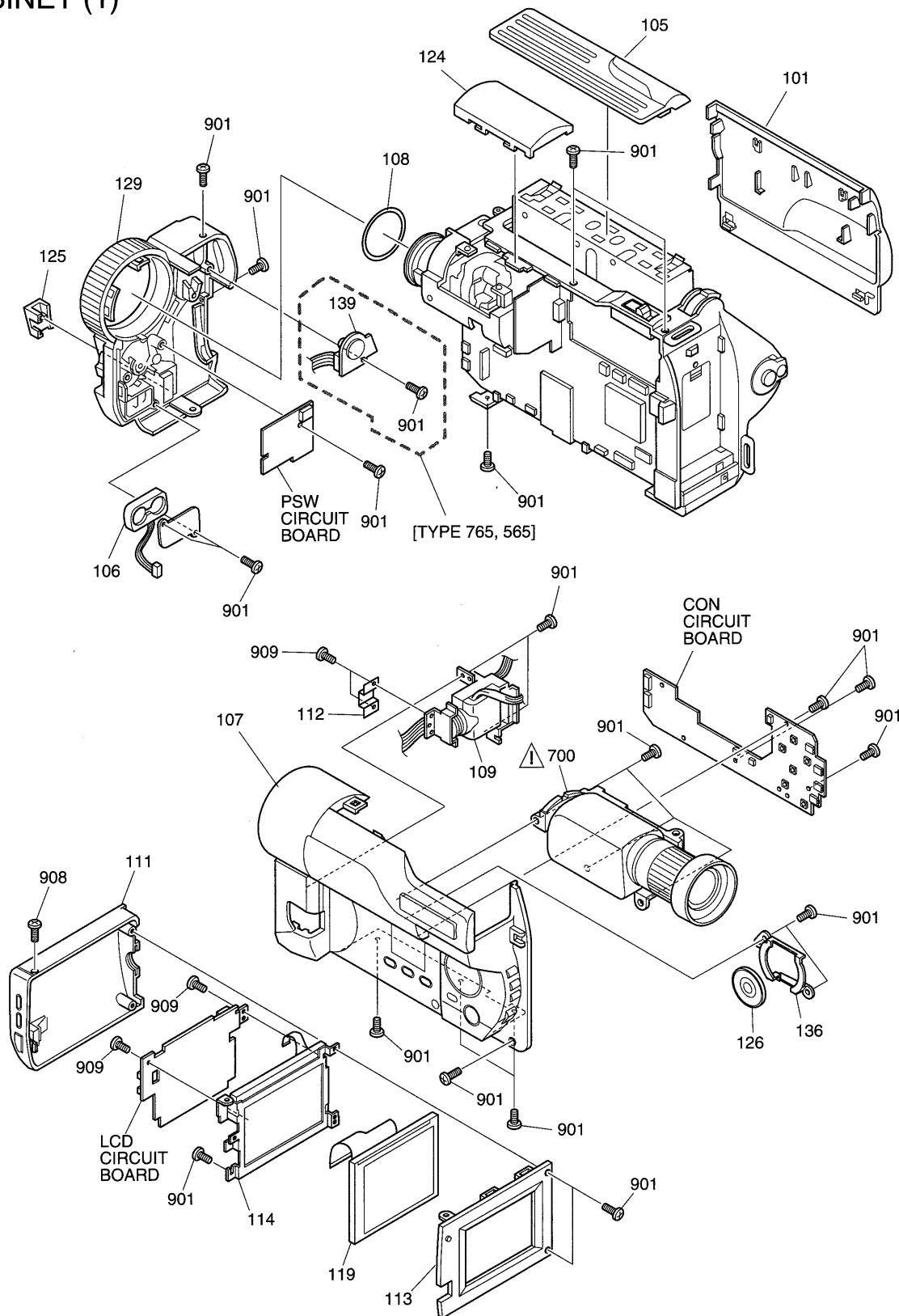


(5) SUBJECT IS GREATLY OUT-OF-FOCUS WHEN ZOOMED



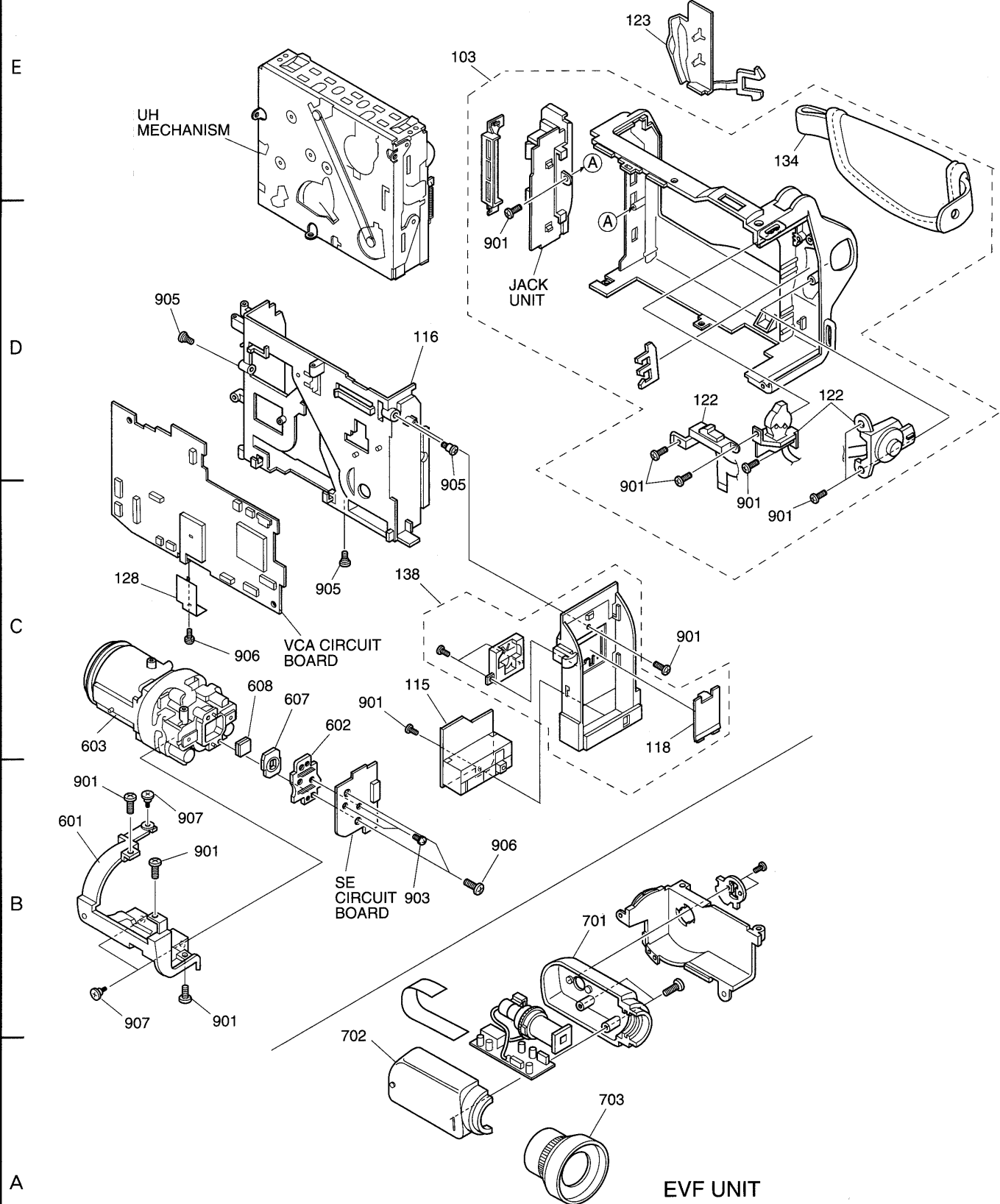
Memo

CABINET (1)

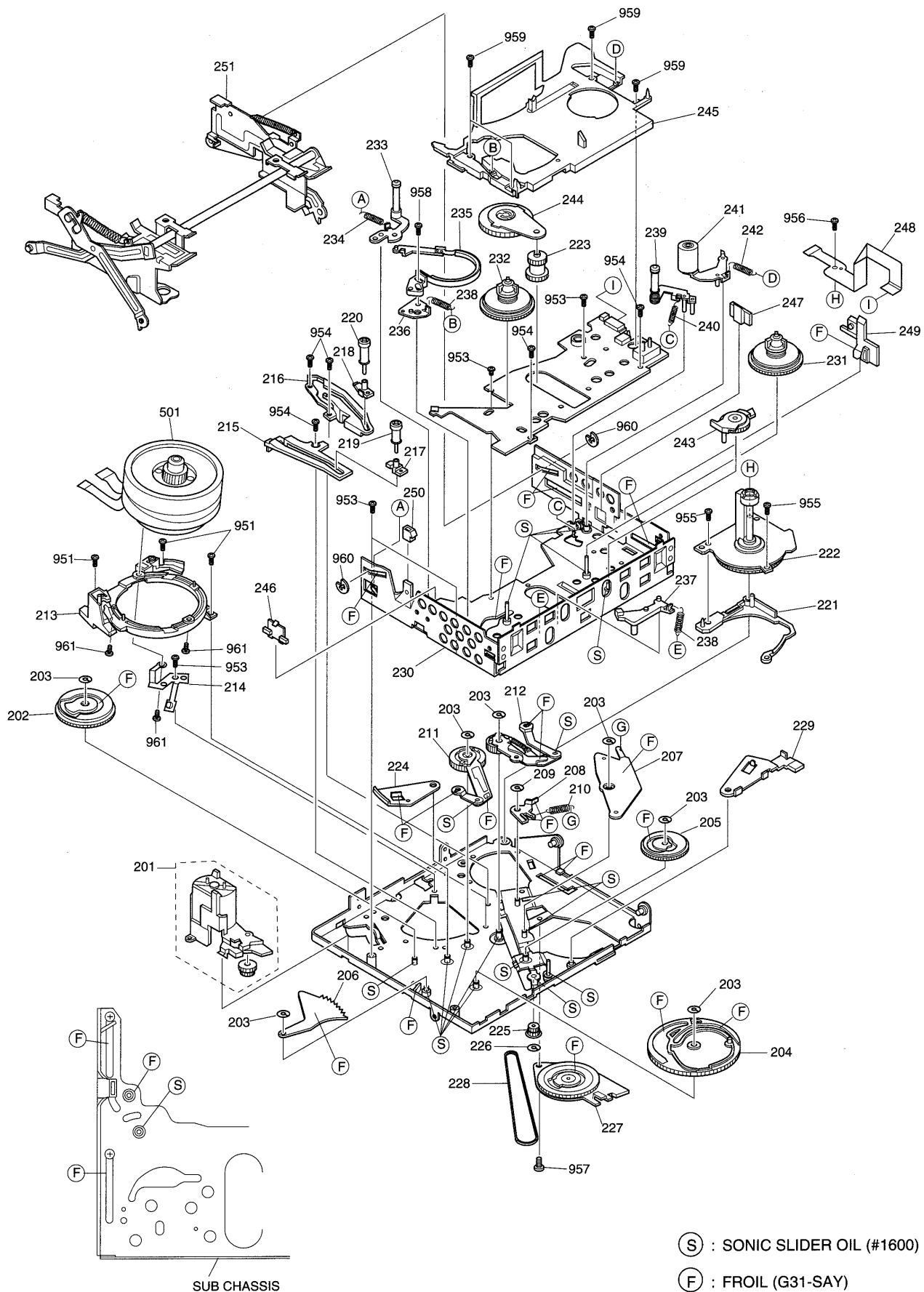


NOTE: The synthetic resin members that can be dismantled are shown by abbreviations using letters.

CABINT (2)

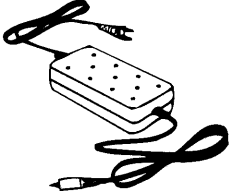
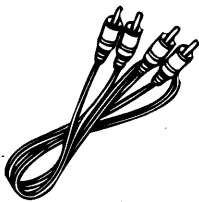
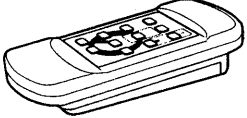
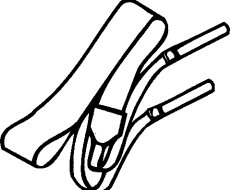
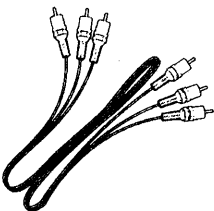
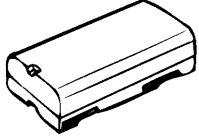


UH MECHANISM



ACCESSOREIS

E

 802  VM-ACE5A	804 [TYPE 665, 565, 563] 	805  VM-RME611A
807 	809 [TYPE 765] 	 Battery  VM-BPL13

D

C

B

A

1

2

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4

1. MECHANICAL PARTS LIST

SYMBOL NO	P-NO	DESCRIPTION	SYMBOL NO	P-NO	DESCRIPTION
MECHANISM SECTION			226	7787733	WASHER
101	QD18891	LID, CASSETTE	227	KX22012	SWITCH, MODE
103	QD19861	CASE, SIDE (R) [TYPE 765]	228	KK10331	BELT, TIMING
103	QD19862	CASE, SIDE (R) [TYPE 665]	229	KX21411	ARM, R
103	QD19863	CASE, SIDE (R) [TYPE 565]	230	UE13524	CHASSIS, SUB
103	QD19864	CASE, SIDE (R) [TYPE 563]	231	KH10353	REEL DISK, TAKE-UP
105	QD18911	COVER, TOP	232	KH10363	REEL, DISK SUPPLY
106	GH10351	MICROPHONE [TYPE 765]	233	KX20303	ARM, TENSION
106	GH10352	MICROPHONE [TYPE 665, 565, 563]	234	KL12661	SPRING, TENSION
107	QD18651	CASE, SIDE (L) [TYPE 765, 665, 565]	235	KX20202	BAND, TENSION
107	QD18653	CASE, SIDE (L) [TYPE 563]	236	KX19841	BASE, B
108	NX11244	RING (O)	237	KX19851	BRAKE
109	NX19223	FLUCLUM ASSY	238	KL12671	SPRING
111	QD18831	CASE, LCD (U) [TYPE 765]	239	KX20495	ARM, OH
111	QD18832	CASE, LCD (U) [TYPE 665]	240	KL12681	SPRING
111	QD18833	CASE, LCD (U) [TYPE 565]	241	KX20354	ARM, PR
111	QD18836	CASE, LCD (U) [TYPE 563]	242	KL12691	SPRING
111	QD18834	CASE, LCD (U)	243	KG10281	GEAR, BRAKE
112	MN15232	SPACER	244	KG10302	IDLER ASSY
113	QD18871	CASE, LCD (B)	245	KX20483	COVER, IDLER
114	DT10351	LIGHT, BACK	246	KX20461	GUIDE, LIGHT (L)
115	FH10651	TERMINAL UNIT	247	KX20472	GUIDE, LIGHT (R)
116	NT11721	FRAME, MECHA	248	EK11132	FLEXIBLE, MECHA
118	QX13981	COVER, BATTERY	249	KX20242	HOLDER, EJECT
119	DB10721	DISPLAY, LIQUID CRYSTAL	250	KX19791	LID OPENER
122	FH10661	SWITCH (TW/PW)	251	KX19609	CASSETTE HOLDER ASSY
123	QX14041	COVER, JACK	501	HX10255	CYLINDER ASSY (CY-53CR-F) [TYPE 565, 563]
124	PH19911	COVER, LENS	501	HX10257	CYLINDER ASSY (CY-53C5) [TYPE 765, 665]
125	QX14081	COVER	601	NT11701	FRAME, LENS
126	GK10252	SPEAKER	602	UE14254	CCD IMAGE SENSOR [TYPE 765]
128	MD12832	SHIELD PLATE	602	UE14253	CCD IMAGE SENSOR [TYPE 665, 565, 563]
129	QD18951	CASE, FRONT [TYPE 765]	603	KQ10752	LENS ASSY
129	QD18952	CASE, FRONT [TYPE 565]	607	NX11252	RUBBER
129	QD18954	CASE, FRONT [TYPE 665, 563]	608	DT10312	CRYSTAL [TYPE 765]
134	PV10241	STRAP, HAND	608	DT10314	CRYSTAL [TYPE 665, 565, 563]
136	NA17111	BRACKET	△ 700	UX10661	EVF ASSY
138	QD18701	COVER, REAR	701	QD19201	CASE, EVF (R)
139	DP10331	LAMP [TYPE 765, 565]	702	QD19211	CASE, EVF (L)
201	KX19871	HOLDER, LOADING MOTOR	703	QD19771	PIECE, EYE
202	KX21991	GEAR, CAM (A)	901	7775946	SCREW (2X6)
203	7787731	WASHER	903	7775945	SCREW (2X5)
204	KX22121	GEAR, CAM (B)	905	7773891	SCREW
205	KX20271	GEAR, CAM (C)	906	8650103	SCREW (2X3)
206	KX19802	ARM, DRIVE	907	MJ10221	SCREW
207	KX19812	LEVER, DRIVE	908	7775964	SCREW (2X4)
208	KX19821	PLATE, PRESSURE	909	MK11701	SCREW (2X4S)
209	7787735	WASHER	951	8700268	SCREW (1.7X3)
210	KL12652	SPRING	953	7775911	SCREW (1.4X1.6)
211	KX19705	LINK (L)	954	7775913	SCREW (1.4X2.0)
212	KX19657	LINK (R)	955	8712970	SCREW (1.4X4)
213	KX21591	BASE, CYLINDER ASSY	956	8712974	SCREW (1.4X6)
214	FU10311	BRUSH	957	8712968	SCREW (1.4X3P)
215	KX20551	GUIDE RAIL (I)	958	MK11551	SCREW (1.7X3.0)
216	KX20561	GUIDE RAIL (O)	959	8714026	SCREW (1.4X3.5)
217	KX20573	BASE, GUIDE ROLLER (I)	960	7778394	E RING
218	KX20582	BASE, GUIDE ROLLER (O)	961	8711105	SCREW (2X5)
219	KF13072	GUIDE (I)	ACCESSORIES		
220	KF13112	ROLLER	△ 802	TS15052	ADAPTOR, AC (VM-ACE5A)
221	KX20293	BASE, CM	804	EW10943	CORD [TYPE 665, 565, 563]
222	GP10665	MOTOR, CAPSTAN	805	HL11231	REMOTE HAND SET
223	KF12911	GEAR, CENTER	807	TS14621	STRAP, SHOULDER
224	KX21601	PLATE	809	EW12143	CORD, 3PIN [TYPE 765]
225	KF12901	GEAR, PULLY			

2. ELECTRICAL PARTS LIST

SYMBOL NO	P-NO	DESCRIPTION	SYMBOL NO	P-NO	DESCRIPTION
CAMERA & VCR SECTION					
C0001	0893193	CERAMIC CHIP 0.01UF+10% 25V	C0223	0806167	ELECTROLYTIC 47UF 4V
C0004	0893193	CERAMIC CHIP 0.01UF+10% 25V	C0224	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0005	0893193	CERAMIC CHIP 0.01UF+10% 25V	C0225	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0101	0893193	CERAMIC CHIP 0.01UF+10% 25V	C0226	AA00751R	CERAMIC CHIP 10UF+10% 6.3V
C0102	0893193	CERAMIC CHIP 0.01UF+10% 25V	C0227	0893118	CERAMIC CHIP 27PF+5% 50V
C0104	0893197	CERAMIC CHIP 0.022UF+10% 25V	C0230	0893129	CERAMIC CHIP 180PF+5% 50V
C0105	0893188	CERAMIC CHIP 0.047UF+10% 16V	C0231	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0106	0893188	CERAMIC CHIP 0.047UF+10% 16V	C0232	0893123	CERAMIC CHIP 56PF+5% 50V
C0107	0893197	CERAMIC CHIP 0.022UF+10% 25V	C0233	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0108	0893197	CERAMIC CHIP 0.022UF+10% 25V	C0234	0893104	CERAMIC CHIP 2PF+0.25% 50V[TYPE 765/665]
C0109	0893197	CERAMIC CHIP 0.022UF+10% 25V	C0234	0893121	CERAMIC CHIP 39PF+5% 50V[TYPE 565/563]
C0110	0893179	CERAMIC CHIP 0.1UF+10% 16V	C0235	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0111	0893179	CERAMIC CHIP 0.1UF+10% 16V	C0236	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0112	0893179	CERAMIC CHIP 0.1UF+10% 16V	C0237	0893119	CERAMIC CHIP 33PF+5% 50V
C0113	0893193	CERAMIC CHIP 0.01UF+10% 25V	C0239	0893111	CERAMIC CHIP 8PF+0.5% 50V
C0114	0893208	CERAMIC CHIP 1000PF+10% 50V	C0240	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0115	0806186	ELECTROLYTIC 220UF 6.3V	C0241	0893205	CERAMIC CHIP 560PF+10% 50V
C0116	AA00751R	CERAMIC CHIP 10UF+10% 6.3V	C0242	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0117	0893193	CERAMIC CHIP 0.01UF+10% 25V	C0243	0893208	CERAMIC CHIP 1000PF+10% 50V
C0118	0893193	CERAMIC CHIP 0.01UF+10% 25V	C0245	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0119	0893193	CERAMIC CHIP 0.01UF+10% 25V	C0246	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0120	0893193	CERAMIC CHIP 0.01UF+10% 25V	C0247	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0121	0893193	CERAMIC CHIP 0.01UF+10% 25V	C0248	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0122	0893117	CERAMIC CHIP 22PF+5% 50V	C0252	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0123	0893133	CERAMIC CHIP 330PF+5% 50V	C0253	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0124	0893112	CERAMIC CHIP 9.0PF+0.5% 50V	C0260	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0125	0893122	CERAMIC CHIP 47PF+5% 50V	C0261	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0126	0893114	CERAMIC CHIP 12PF+5% 50V	C0262	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0128	0893193	CERAMIC CHIP 0.01UF+10% 25V	C0263	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0129	0893132	CERAMIC CHIP 270PF+5% 50V	C0265	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0130	0893193	CERAMIC CHIP 0.01UF+10% 25V	C0266	AA00951R	CERAMIC CAPACITOR 1.0UF+10% 16V
C0132	0893193	CERAMIC CHIP 0.01UF+10% 25V	C0267	0893179	CERAMIC CHIP 0.1UF+10% 16V
C0133	0893193	CERAMIC CHIP 0.01UF+10% 25V	C0268	0893179	CERAMIC CHIP 0.1UF+10% 16V
C0134	0893111	CERAMIC CHIP 8PF+0.5% 50V	C0269	0893179	CERAMIC CHIP 0.1UF+10% 16V
C0135	0893113	CERAMIC CHIP 10PF+0.5% 50V	C0270	AA01101R	CERAMIC CAPACITOR 1UF+20% 10V
C0136	0893126	CERAMIC CHIP 100PF+5% 50V	C0271	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0137	0893123	CERAMIC CHIP 56PF+5% 50V	C0272	AA01101R	CERAMIC CAPACITOR 1UF+20% 10V
C0139	0893121	CERAMIC CHIP 39PF+5% 50V	C0273	AA01101R	CERAMIC CAPACITOR 1UF+20% 10V
C0140	0893193	CERAMIC CHIP 0.01UF+10% 25V	C0274	0893179	CERAMIC CHIP 0.1UF+10% 16V
C0150	0893179	CERAMIC CHIP 0.1UF+10% 16V	C0275	AA01101R	CERAMIC CAPACITOR 1UF+20% 10V
C0151	0893122	CERAMIC CHIP 47PF+5% 50V	C0277	0893208	CERAMIC CHIP 1000PF+10% 50V
C0152	0893119	CERAMIC CHIP 33PF+5% 50V	C0278	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0153	0893121	CERAMIC CHIP 39PF+5% 50V	C0279	0893179	CERAMIC CHIP 0.1UF+10% 16V
C0154	0893193	CERAMIC CHIP 0.01UF+10% 25V	C0280	0893117	CERAMIC CHIP 22PF+5% 50V
C0155	0893193	CERAMIC CHIP 0.01UF+10% 25V	C0281	0893117	CERAMIC CHIP 22PF+5% 50V
C0156	0893193	CERAMIC CHIP 0.01UF+10% 25V	C0282	0893117	CERAMIC CHIP 22PF+5% 50V
C0201	0893193	CERAMIC CHIP 0.01UF+10% 25V	C0285	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0202	0893193	CERAMIC CHIP 0.01UF+10% 25V	C0290	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0203	AA01101R	CERAMIC CAPACITOR 10F+20% 10V	C0301	0806133	ELECTROLYTIC 10UF 6V
C0205	AD10488R	CHIP CAPACITOR 100UF+20% 4V	C0302	0806178	ELECTROLYTIC 220UF 4V
C0208	0893193	CERAMIC CHIP 0.01UF+10% 25V	C0303	0806178	ELECTROLYTIC 220UF 4V
C0209	0893109	CERAMIC CHIP 7.0PF 50V	C0304	0806133	ELECTROLYTIC 10UF 6V
C0210	0893193	CERAMIC CHIP 0.01UF+10% 25V	C0305	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0212	0893109	CERAMIC CHIP 7.0PF 50V	C0306	0893179	CERAMIC CHIP 0.1UF+10% 16V
C0213	0893193	CERAMIC CHIP 0.01UF+10% 25V	C0307	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0214	AA01101R	CERAMIC CAPACITOR 1UF+20% 10V	C0308	0806168	ELECTROLYTIC 47UF 6.3V
C0215	0893193	CERAMIC CHIP 0.01UF+10% 25V	C0309	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0217	0893193	CERAMIC CHIP 0.01UF+10% 25V	C0311	0806027	ELECTROLYTIC 4.7UF 4V
C0218	0893113	CERAMIC CHIP 10PF+0.5% 50V	C0312	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0219	0893193	CERAMIC CHIP 0.01UF+10% 25V	C0315	AA00934R	CERAMIC CAPACITOR 2.2UF+10% 10V
C0220	0893193	CERAMIC CHIP 0.01UF+10% 25V	C0350	AA01101R	CERAMIC CAPACITOR 1UF+20% 10V
C0222	AA00751R	CERAMIC CHIP 10UF+10% 6.3V	C0352	0893179	CERAMIC CHIP 0.1UF+10% 16V
			C0353	0893193	CERAMIC CHIP 0.01UF+10% 25V
			C0354	AA00335R	CHIP CERAMIC 1.0UF+80-20% 25V
			C0355	AA01101R	CERAMIC CAPACITOR 1UF+20% 10V

SYMBOL NO	P-NO	DESCRIPTION	SYMBOL NO	P-NO	DESCRIPTION
C0356	0893062	CERAMIC CHIP 1UF+80-20% 16V	C0446M	AA00951R	CERAMIC CAPACITOR 1.0UF+-10% 16V
C0357	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V	C0447M	AA01132R	CERAMIC CAPACITOR 0.22UF+-10% 6.3V
C0358	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V	C0448L	AA01132R	CERAMIC CAPACITOR 0.22UF+-10% 6.3V
C0360	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V	C0448R	AA01132R	CERAMIC CAPACITOR 0.22UF+-10% 6.3V
C0361	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V	C0449M	0806027	ELECTROLYTIC 4.7UF 4V
C0362	0893179	CERAMIC CHIP 0.1UF+-10% 16V	C0451M	0806156	ELECTROLYTIC 22UF 4V
C0363	0893179	CERAMIC CHIP 0.1UF+-10% 16V	C0452S	0806133	ELECTROLYTIC 10UF 6V
C0364	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V	C0453S	AA01132R	CERAMIC CAPACITOR 0.22UF+-10% 6.3V
C0365	AA00358R	CHIP CERAMIC 1.0UF+-10% 16V	C0454M	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0401L	AA01132R	CERAMIC CAPACITOR 0.22UF+-10% 6.3V	C0455M	0893099	CERAMIC CHIP 0.47UF+-10% 16V
C0401R	AA01132R	CERAMIC CAPACITOR 0.22UF+-10% 6.3V	C0457	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0405L	AA01132R	CERAMIC CAPACITOR 0.22UF+-10% 6.3V	C0458	0806168	ELECTROLYTIC 47UF 6.3V
C0405R	AA01132R	CERAMIC CAPACITOR 0.22UF+-10% 6.3V	C0459	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0406L	AA01132R	CERAMIC CAPACITOR 0.22UF+-10% 6.3V	C0460	0806133	ELECTROLYTIC 10UF 6V
C0406R	AA01132R	CERAMIC CAPACITOR 0.22UF+-10% 6.3V	C0461M	0806167	ELECTROLYTIC 47UF 4V
C0407M	0893179	CERAMIC CHIP 0.1UF+-10% 16V	C0463	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V
C0408L	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0464S	AA01132R	CERAMIC CAPACITOR 0.22UF+-10% 6.3V
C0408R	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0465	0806174	ELECTROLYTIC 100UF 6.3V
C0409M	0893099	CERAMIC CHIP 0.47UF+-10% 16V	C0466	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0410M	0893188	CERAMIC CHIP 0.047UF+-10% 16V	C0471	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0411L	0893213	CERAMIC CHIP 2200PF+-10% 50V	C0471R	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0411R	0893213	CERAMIC CHIP 2200PF+-10% 50V	C0472	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0412L	0893211	CERAMIC CHIP 1500PF+-10% 50V	C0472R	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0412R	0893211	CERAMIC CHIP 1500PF+-10% 50V	C0473L	0893182	CERAMIC CHIP 0.015UF+-10% 25V
C0413M	AD10266R	ELECTROLYTIC 22UF 4V	C0473R	0893182	CERAMIC CHIP 0.015UF+-10% 25V
C0414	0806162	ELECTROLYTIC 33UF 4V[TYPE 665/565/563]	C0474L	AA01111R	CERAMIC CHIP 1UF 6.3V
C0414	0806167	ELECTROLYTIC 47UF 4V[TYPE 765]	C0474R	AA01111R	CERAMIC CHIP 1UF 6.3V
C0414R	0806167	ELECTROLYTIC 47UF 4V	C0475L	AA01111R	CERAMIC CHIP 1UF 6.3V
C0415M	0806027	ELECTROLYTIC 4.7UF 4V	C0475R	AA01111R	CERAMIC CHIP 1UF 6.3V
C0416L	AA00934R	CERAMIC CAPACITOR 2.2UF+-10% 10V	C0476L	0893191	CERAMIC CHIP 6800PF+-10% 25V
C0416R	AA00934R	CERAMIC CAPACITOR 2.2UF+-10% 10V	C0476R	0893191	CERAMIC CHIP 6800PF+-10% 25V
C0417L	0806027	ELECTROLYTIC 4.7UF 4V	C0477L	AA01111R	CERAMIC CHIP 1UF 6.3V
C0417R	0806027	ELECTROLYTIC 4.7UF 4V	C0477R	AA01111R	CERAMIC CHIP 1UF 6.3V
C0418M	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0478L	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0419L	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0478R	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0419R	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0479S	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0420M	0806027	ELECTROLYTIC 4.7UF 4V	C0480S	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V
C0421L	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0481	AA00934R	CERAMIC CAPACITOR 2.2UF+-10% 10V
C0421R	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0482L	AA01136R	CERAMIC CAPACITOR 0.47UF+-10% 6.3V
C0422M	AA01136R	CERAMIC CAPACITOR 0.47UF+-10% 6.3V	C0482R	AA01136R	CERAMIC CAPACITOR 0.47UF+-10% 6.3V
C0423L	AA01132R	CERAMIC CAPACITOR 0.22UF+-10% 6.3V	C0483	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0423R	AA01132R	CERAMIC CAPACITOR 0.22UF+-10% 6.3V	C0483R	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0424M	0806133	ELECTROLYTIC 10UF 6V	C0484L	0893099	CERAMIC CHIP 0.47UF+-10% 16V
C0425L	0806027	ELECTROLYTIC 4.7UF 4V	C0484R	0893099	CERAMIC CHIP 0.47UF+-10% 16V
C0425R	0806027	ELECTROLYTIC 4.7UF 4V	C0489	AA01136R	CERAMIC CAPACITOR 0.47UF+-10% 6.3V
C0426M	0806027	ELECTROLYTIC 4.7UF 4V	C0489R	AA01136R	CERAMIC CAPACITOR 0.47UF+-10% 6.3V
C0427S	AA00934R	CERAMIC CAPACITOR 2.2UF+-10% 10V	C0501	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0428M	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0502	0893119	CERAMIC CHIP 33PF+-5% 50V
C0429M	0893219	CERAMIC CHIP 0.0068UF+-10% 50V	C0503	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0430S	0806027	ELECTROLYTIC 4.7UF 4V	C0504	0893119	CERAMIC CHIP 33PF+-5% 50V
C0431M	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0505	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0431S	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0507	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0432M	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0508	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0433L	0893197	CERAMIC CHIP 0.022UF+-10% 25V	C0509	0893126	CERAMIC CHIP 100PF+-5% 50V
C0433R	0893197	CERAMIC CHIP 0.022UF+-10% 25V	C0510	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0435M	0893215	CERAMIC CHIP 3300PF+-10% 50V	C0511	0893183	CHIP CERAMIC 0.018PF+-10% 16V
C0436S	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V	C0513	0893227	CERAMIC CHIP 0.22UF+-10% 6.3V
C0437S	0806133	ELECTROLYTIC 10UF 6V	C0514	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0438M	0893179	CERAMIC CHIP 0.1UF+-10% 16V	C0516	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0439M	0893179	CERAMIC CHIP 0.1UF+-10% 16V	C0517	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0440M	0893213	CERAMIC CHIP 2200PF+-10% 50V	C0518	0893129	CERAMIC CHIP 180PF+-5% 50V
C0441M	AA00951R	CERAMIC CAPACITOR 1.0UF+-10% 16V	C0519	0893133	CERAMIC CHIP 330PF+-5% 50V
C0442M	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0520	0893129	CERAMIC CHIP 180PF+-5% 50V
C0443M	0806168	ELECTROLYTIC 47UF 6.3V	C0521	0893133	CERAMIC CHIP 330PF+-5% 50V
C0444M	0806133	ELECTROLYTIC 10UF 6V	C0522	0893129	CERAMIC CHIP 180PF+-5% 50V

SYMBOL NO	P-NO	DESCRIPTION	SYMBOL NO	P-NO	DESCRIPTION
C0523	0893215	CERAMIC CHIP 3300PF+10% 50V	C0671	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C0524	0893133	CERAMIC CHIP 330PF+5% 50V	C0672	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C0525	0893129	CERAMIC CHIP 180PF+5% 50V	C0673	0893213	CERAMIC CHIP 2200PF+10% 50V
C0527	0893062	CERAMIC CHIP 1UF+80-20% 16V	C0691	0893198	CERAMIC CHIP 0.027UF+10% 25V
C0528	AA00412R	CERAMIC CHIP 10UF+80-20% 16V	C0692	0893245	CERAMIC CAPACITOR 0.015UF+10% 50V
C0529	AA00751R	CERAMIC CHIP 10UF+10% 6.3V	C0693	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0530	0893217	CERAMIC CHIP 4700PF+10% 50V	C0694	0893197	CERAMIC CHIP 0.022UF+10% 25V
C0534	0893208	CERAMIC CHIP 1000PF+10% 50V	C0695	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0535	AA00751R	CERAMIC CHIP 10UF+10% 6.3V	C0696	0893219	CERAMIC CHIP 0.0068UF+10% 50V
C0538	AA00751R	CERAMIC CHIP 10UF+10% 6.3V	C0701	0806168	ELECTROLYTIC 47UF 6.3V
C0540	0893062	CERAMIC CHIP 1UF+80-20% 16V	C0703	0893179	CERAMIC CHIP 0.1UF+10% 16V
C0541	AA00335R	CHIP CERAMIC 1.0UF+80-20% 25V	C0731	0806174	ELECTROLYTIC 100UF 6.3V
C0542	0893062	CERAMIC CHIP 1UF+80-20% 16V	C0736	0806174	ELECTROLYTIC 100UF 6.3V
C0543	AA00335R	CHIP CERAMIC 1.0UF+80-20% 25V	C0737	AA00751R	CERAMIC CHIP 10UF+10% 6.3V
C0544	0893062	CERAMIC CHIP 1UF+80-20% 16V	C0757	AA00751R	CERAMIC CHIP 10UF+10% 6.3V
C0545	0893062	CERAMIC CHIP 1UF+80-20% 16V	C0904	AA01101R	CERAMIC CAPACITOR 1UF+20% 10V
C0546	AA00751R	CERAMIC CHIP 10UF+10% 6.3V	C0905	0806173	ELECTROLYTIC 100UF 4V
C0547	0893062	CERAMIC CHIP 1UF+80-20% 16V	C0906	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0550	AA00412R	CERAMIC CHIP 10UF+80-20% 16V	C0907	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0551	AA00751R	CERAMIC CHIP 10UF+10% 6.3V	C0908	0806167	ELECTROLYTIC 47UF 4V
C0552	AA00751R	CERAMIC CHIP 10UF+10% 6.3V	C0909	AA01101R	CERAMIC CAPACITOR 1UF+20% 10V
C0559	AA00751R	CERAMIC CHIP 10UF+10% 6.3V	C0910	0893188	CERAMIC CHIP 0.047UF+10% 16V
C0562	0893208	CERAMIC CHIP 1000PF+10% 50V	C0911	0893113	CERAMIC CHIP 10PF+0.5% 50V
C0577	0893058	CERAMIC CHIP 0.33UF+80-20% 16V	C0912	0893113	CERAMIC CHIP 10PF+0.5% 50V
C0578	0806174	ELECTROLYTIC 100UF 6.3V	C0913	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0582	AA00951R	CERAMIC CAPACITOR 1.0UF+10% 16V	C0914	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0584	0893062	CERAMIC CHIP 1UF+80-20% 16V	C0915	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0585	0893062	CERAMIC CHIP 1UF+80-20% 16V	C0916	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0586	0893193	CERAMIC CHIP 0.01UF+10% 25V	C0917	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0588	0893062	CERAMIC CHIP 1UF+80-20% 16V	C0918	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0589	0893062	CERAMIC CHIP 1UF+80-20% 16V	C0919	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0590	0893062	CERAMIC CHIP 1UF+80-20% 16V	C0920	AA01101R	CERAMIC CAPACITOR 1UF+20% 10V
C0591	AA00335R	CHIP CERAMIC 1.0UF+80-20% 25V	C0921	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0592	0893062	CERAMIC CHIP 1UF+80-20% 16V	C0922	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0593	AA00412R	CERAMIC CHIP 10UF+80-20% 16V	C0923	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0594	0893062	CERAMIC CHIP 1UF+80-20% 16V	C0924	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0595	0893062	CERAMIC CHIP 1UF+80-20% 16V	C0925	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0596	AA00335R	CHIP CERAMIC 1.0UF+80-20% 25V	C0926	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0597	0893062	CERAMIC CHIP 1UF+80-20% 16V	C0927	0893179	CERAMIC CHIP 0.1UF+10% 16V
C0598	0893062	CERAMIC CHIP 1UF+80-20% 16V	C0928	0893117	CERAMIC CHIP 22PF+5% 50V
C0631	0893179	CERAMIC CHIP 0.1UF+10% 16V	C0929	0893117	CERAMIC CHIP 22PF+5% 50V
C0632	0893179	CERAMIC CHIP 0.1UF+10% 16V	C0930	AA01101R	CERAMIC CAPACITOR 1UF+20% 10V
C0633	0893179	CERAMIC CHIP 0.1UF+10% 16V	C0942	AA01101R	CERAMIC CAPACITOR 1UF+20% 10V
C0635	0893193	CERAMIC CHIP 0.01UF+10% 25V	C1001	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0636	0893193	CERAMIC CHIP 0.01UF+10% 25V	C1003	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0637	0893193	CERAMIC CHIP 0.01UF+10% 25V	C1004	0893211	CERAMIC CHIP 1500PF+10% 50V
C0638	0893219	CERAMIC CHIP 0.0068UF+10% 50V	C1005	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0640	0893179	CERAMIC CHIP 0.1UF+10% 16V	C1006	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0641	AA01134R	CERAMIC CAPACITOR 0.33UF+10% 6.3V	C1007	0893113	CERAMIC CHIP 10PF+0.5% 50V
C0642	0806133	ELECTROLYTIC 10UF 6V	C1008	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C0643	0806133	ELECTROLYTIC 10UF 6V	C1009	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0644	0893179	CERAMIC CHIP 0.1UF+10% 16V	C1011	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0645	0893217	CERAMIC CHIP 4700PF+10% 50V	C1012	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0647	AA01132R	CERAMIC CAPACITOR 0.22UF+10% 6.3V	C1111	0893208	CERAMIC CHIP 1000PF+10% 25V
C0648	0893188	CERAMIC CHIP 0.047UF+10% 16V	C1112	AA01101R	CERAMIC CAPACITOR 1UF+20% 10V
C0649	0893188	CERAMIC CHIP 0.047UF+10% 16V	C1113	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0650	0893193	CERAMIC CHIP 0.01UF+10% 25V	C1114	0893208	CERAMIC CHIP 1000PF+10% 50V
C0651	0893193	CERAMIC CHIP 0.01UF+10% 25V	C1115	0893208	CERAMIC CHIP 1000PF+10% 50V
C0652	0893193	CERAMIC CHIP 0.01UF+10% 25V	C1116	0893208	CERAMIC CHIP 1000PF+10% 50V
C0655	0893179	CERAMIC CHIP 0.1UF+10% 16V	C1117	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C0656	0893179	CERAMIC CHIP 0.1UF+10% 16V	C1118	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C0657	AA01136R	CERAMIC CAPACITOR 0.47UF+10% 6.3V	C1155	0893193	CERAMIC CHIP 0.01UF+10% 25V
C0658	0893179	CERAMIC CHIP 0.1UF+10% 16V	C1159	AA01101R	CERAMIC CAPACITOR 1UF+20% 10V
C0659	0893179	CERAMIC CHIP 0.1UF+10% 16V	C1161	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C0660	0893179	CERAMIC CHIP 0.1UF+10% 16V	C1162	0893232	CERAMIC CHIP 0.1UF+80-20% 25V

SYMBOL NO	P-NO	DESCRIPTION	SYMBOL NO	P-NO	DESCRIPTION
C1163	0893193	CERAMIC CHIP 0.01UF+10% 25V	R0014	AQ01007R	CHIP RESISTOR 1KOHM+0.5% 1/16W
C1164	AA01101R	CERAMIC CAPACITOR 1UF+20% 10V	R0017	0790051	CHIP RESISTOR 10KOHM+5% 1/16W
C1165	0893193	CERAMIC CHIP 0.01UF+10% 25V	R0018	0790051	CHIP RESISTOR 10KOHM+5% 1/16W
C1167	0893193	CERAMIC CHIP 0.01UF+10% 25V	R0020	AQ10405R	CHIP RESISTOR 0.100HM 1/4W
C1168	0893193	CERAMIC CHIP 0.01UF+10% 25V	R0024	AQ01031R	CHIP RESISTOR 56KOHM+0.5% 1/16W
C1169	0893232	CERAMIC CHIP 0.1UF+80-20% 25V	R0025	0105217	CHIP RESISTOR 150KOHM+0.5% 1/16W
C1170	AA01101R	CERAMIC CAPACITOR 1UF+20% 10V	R0101	0790024	CHIP RESISTOR 100 OHM+5% 1/16W
C1201	0893193	CERAMIC CHIP 0.01UF+10% 25V	R0102	0790051	CHIP RESISTOR 10KOHM+5% 1/16W
C1202	0893193	CERAMIC CHIP 0.01UF+10% 25V	R0103	0790051	CHIP RESISTOR 10KOHM+5% 1/16W
C1203	0893193	CERAMIC CHIP 0.01UF+10% 25V	R0104	0790039	CHIP RESISTOR 1.5KOHM+5% 1/16W
C1204	0893132	CERAMIC CHIP 270PF+5% 50V	R0105	0790039	CHIP RESISTOR 1.5KOHM+5% 1/16W
C1205	0893193	CERAMIC CHIP 0.01UF+10% 25V	R0106	0790007	CHIP RESISTOR 5.6 OHM+5% 1/16W
C1206	0893178	CERAMIC CAPACITOR 0.082UF+10% 16V	R0107	0790007	CHIP RESISTOR 5.6 OHM+5% 1/16W
C1207	0893069	CERAMIC CHIP 0.22UF+80-20% 25V	R0108	0790024	CHIP RESISTOR 100 OHM+5% 1/16W
C1208	0893113	CERAMIC CHIP 10PF+0.5% 50V	R0109	0790059	CHIP RESISTOR 47KOHM+5% 1/16W
C1209	0893133	CERAMIC CHIP 330PF+5% 50V	R0110	0790054	CHIP RESISTOR 18KOHM+5% 1/16W
C1210	0893133	CERAMIC CHIP 330PF+5% 50V	R0111	0790059	CHIP RESISTOR 47KOHM+5% 1/16W
C1211	0893133	CERAMIC CHIP 330PF+5% 50V	R0112	0790044	CHIP RESISTOR 3.3KOHM+5% 1/16W
C1212	AA01101R	CERAMIC CAPACITOR 1UF+20% 10V	R0113	0790036	CHIP RESISTOR 820 OHM+5% 1/16W
C1213	0893193	CERAMIC CHIP 0.01UF+10% 25V	R0114	0790076	CHIP RESISTOR 820KOHM+5% 1/16W
C1301	0806186	ELECTROLYTIC 220UF 6.3V	R0115	0790042	CHIP RESISTOR 2.2KOHM+5% 1/16W
C1302	0893193	CERAMIC CHIP 0.01UF+10% 25V	R0116	0790044	CHIP RESISTOR 3.3KOHM+5% 1/16W
C1305	0893193	CERAMIC CHIP 0.01UF+10% 25V	R0118	0790041	CHIP RESISTOR 1.8KOHM+5% 1/16W
C1306	0893193	CERAMIC CHIP 0.01UF+10% 25V	R0119	0790059	CHIP RESISTOR 47KOHM+5% 1/16W
C1311	0893232	CERAMIC CHIP 0.1UF+80-20% 25V	R0120	0790052	CHIP RESISTOR 12KOHM+5% 1/16W
C1403	0893232	CERAMIC CHIP 0.1UF+80-20% 25V	R0121	0790056	CHIP RESISTOR 27KOHM+5% 1/16W
C1404	0893232	CERAMIC CHIP 0.1UF+80-20% 25V	R0122	0790032	CHIP RESISTOR 390 OHM+5% 1/16W
C1405	0806156	ELECTROLYTIC 22UF 4V	R0123	0790034	CHIP RESISTOR 560 OHM+5% 1/16W
C1406	0806156	ELECTROLYTIC 22UF 4V	R0124	0790035	CHIP RESISTOR 680 OHM+5% 1/16W
C1407	0893194	CERAMIC CHIP 0.012UF+10% 25V	R0125	0790034	CHIP RESISTOR 560 OHM+5% 1/16W
C1408	0893194	CERAMIC CHIP 0.012UF+10% 25V	R0126	0790028	CHIP RESISTOR 220 OHM+5% 1/16W
C1409	0893194	CERAMIC CHIP 0.012UF+10% 25V	R0127	0790034	CHIP RESISTOR 560 OHM+5% 1/16W
C1410	0893194	CERAMIC CHIP 0.012UF+10% 25V	R0128	0790037	CHIP RESISTOR 1KOHM+5% 1/16W
C1411	AA00373R	CERAMIC CAPACITOR 4.7UF+10% 10V	R0129	0790046	CHIP RESISTOR 4.7KOHM+5% 1/16W
C1412	AA00373R	CERAMIC CAPACITOR 4.7UF+10% 10V	R0130	0790051	CHIP RESISTOR 10KOHM+5% 1/16W
C1413	0893214	CERAMIC CHIP 2700PF+10% 50V	R0131	0790028	CHIP RESISTOR 220 OHM+5% 1/16W
C1414	0893214	CERAMIC CHIP 2700PF+10% 50V	R0132	0790034	CHIP RESISTOR 560 OHM+5% 1/16W
C1415	0893232	CERAMIC CHIP 0.1UF+80-20% 25V	R0133	0790029	CHIP RESISTOR 270 OHM+5% 1/16W
C1417	0806156	ELECTROLYTIC 22UF 4V	R0140	0790036	CHIP RESISTOR 820 OHM+5% 1/16W
C5314	0893099	CERAMIC CHIP 0.47UF+10% 16V	R0141	0790035	CHIP RESISTOR 680 OHM+5% 1/16W
C5319	AA00951R	CERAMIC CAPACITOR 1.0UF+10% 16V	R0144	0790028	CHIP RESISTOR 220 OHM+5% 1/16W
C5320	AD10274R	ELECTROLYTIC 6.8UF 20V	R0145	0790034	CHIP RESISTOR 560 OHM+5% 1/16W
C5501	0893179	CERAMIC CHIP 0.1UF+10% 16V	R0146	0790034	CHIP RESISTOR 560 OHM+5% 1/16W
C5502	0893093	CERAMIC CHIP 2.2UF+80-20% 16V	R0147	0790034	CHIP RESISTOR 560 OHM+5% 1/16W
C5503	0893008	CERAMIC CHIP 0.1UF +10% 16V	R0148	0790034	CHIP RESISTOR 560 OHM+5% 1/16W
C5504	0893184	CERAMIC CHIP 0.022UF+10% 16V	R0149	0790027	CHIP RESISTOR 180OHM+5% 1/16W
C5505	0893193	CERAMIC CHIP 0.01UF+10% 25V	R0150	0790034	CHIP RESISTOR 560 OHM+5% 1/16W
C5507	AA00373R	CERAMIC CAPACITOR 4.7UF+10% 10V	R0151	0790043	CHIP RESISTOR 2.7KOHM+5% 1/16W
C5509	0893116	CERAMIC CHIP 18PF+5% 50V	R0152	0790051	CHIP RESISTOR 10KOHM+5% 1/16W
C5510	0893118	CERAMIC CHIP 27PF+5% 50V	R0153	0790031	CHIP RESISTOR 330 OHM+5% 1/16W
C5511	AD10276R	ELECTROLYTIC 33UF 10V	R0154	0790034	CHIP RESISTOR 560 OHM+5% 1/16W
C5512	0202328	CERAMIC CHIP 1.0UF+80-20% 16V	R0156	0790037	CHIP RESISTOR 1KOHM+5% 1/16W
C5513	AF10115R	CHIP CAPASITOR 0.018UF+5% 50V	R0157	0790045	CHIP RESISTOR 3.9KOHM+5% 1/16W
C5524	AA10647R	CERAMIC CAPACITOR 12PF+5% 2KV	R0158	0790038	CHIP RESISTOR 1.2KOHM+5% 1/16W
R0001	0790037	CHIP RESISTOR 1KOHM+5% 1/16W	R0159	0790043	CHIP RESISTOR 2.7KOHM+5% 1/16W
R0002	0790037	CHIP RESISTOR 1KOHM+5% 1/16W	R0160	0790033	CHIP RESISTOR 470 OHM+5% 1/16W
R0003	0790037	CHIP RESISTOR 1KOHM+5% 1/16W	R0161	0790038	CHIP RESISTOR 1.2KOHM+5% 1/16W
R0006	0790077	CHIP RESISTOR 1MOHM+5% 1/16W	R0163	0790036	CHIP RESISTOR 820 OHM+5% 1/16W
R0007	0103978	CHIP RESISTOR 3.3OHM+5% 1/8W	R0164	0790041	CHIP RESISTOR 1.8KOHM+5% 1/16W
R0008	0790037	CHIP RESISTOR 1KOHM+5% 1/16W	R0165	0790059	CHIP RESISTOR 47KOHM+5% 1/16W
R0009	0790047	CHIP RESISTOR 5.6KOHM+5% 1/16W	R0166	0790037	CHIP RESISTOR 1KOHM+5% 1/16W
R0010	0790077	CHIP RESISTOR 1MOHM+5% 1/16W	R0170	0790062	CHIP RESISTOR 68KOHM+5% 1/16W
R0011	AQ01007R	CHIP RESISTOR 1KOHM+0.5% 1/16W	R0171	0790057	CHIP RESISTOR 33KOHM+5% 1/16W
R0012	AQ01021R	CHIP RESISTOR 10KOHM+0.5% 1/16W	R0172	0790034	CHIP RESISTOR 560 OHM+5% 1/16W
R0013	AQ01024R	CHIP RESISTOR 18KOHM+0.5% 1/16W	R0173	0790033	CHIP RESISTOR 470 OHM+5% 1/16W

SYMBOL NO	P-NO	DESCRIPTION	SYMBOL NO	P-NO	DESCRIPTION
R0174	0790008	CHIP RESISTOR 6.8 OHM $\pm$ 5% 1/16W	R0291	0790036	CHIP RESISTOR 820 OHM $\pm$ 5% 1/16W [TYPE 765/665]
R0175	0790044	CHIP RESISTOR 3.3KOHM $\pm$ 5% 1/16W	R0301	0790022	CHIP RESISTOR 68 OHM $\pm$ 5% 1/16W
R0176	0790029	CHIP RESISTOR 270 OHM $\pm$ 5% 1/16W [TYPE 565/563]	R0302	0790022	CHIP RESISTOR 68 OHM $\pm$ 5% 1/16W
R0176	0790035	CHIP RESISTOR 680 OHM $\pm$ 5% 1/16W [TYPE 765/665]	R0304	0790022	CHIP RESISTOR 68 OHM $\pm$ 5% 1/16W
R0177	0790034	CHIP RESISTOR 560 OHM $\pm$ 5% 1/16W	R0306	0790077	CHIP RESISTOR 1MOHM $\pm$ 5% 1/16W
R0178	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W	R0311	0790042	CHIP RESISTOR 2.2KOHM $\pm$ 5% 1/16W[TYPE 765]
R0179	0790039	CHIP RESISTOR 1.5KOHM $\pm$ 5% 1/16W	R0311	0790055	CHIP RESISTOR 22KOHM $\pm$ 5% 1/16W [TYPE 665/565]
R0202	BM00141R	FILTER	R0328	0790052	CHIP RESISTOR 12KOHM $\pm$ 5% 1/16W
R0204	0790077	CHIP RESISTOR 1MOHM $\pm$ 5% 1/16W	R0351	AQ00181R	CHIP RESISTOR 330 OHM $\pm$ 1% 1/16W
R0206	0790055	CHIP RESISTOR 22KOHM $\pm$ 5% 1/16W	R0353	AQ00181R	CHIP RESISTOR 330 OHM $\pm$ 1% 1/16W
R0208	0790028	CHIP RESISTOR 220 OHM $\pm$ 5% 1/16W	R0355	AQ00181R	CHIP RESISTOR 330 OHM $\pm$ 1% 1/16W
R0209	0790045	CHIP RESISTOR 3.9KOHM $\pm$ 5% 1/16W	R0356	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0210	0790035	CHIP RESISTOR 680 OHM $\pm$ 5% 1/16W	R0357	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0213	0790048	CHIP RESISTOR 6.8KOHM $\pm$ 5% 1/16W	R0358	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0214	AQ00221R	CHIP RESISTOR 10KOHM $\pm$ 1% 1/16W	R0359	0790059	CHIP RESISTOR 47KOHM $\pm$ 5% 1/16W
R0215	AQ00227R	CHIP RESISTOR 18KOHM $\pm$ 1% 1/16W	R0360	0790059	CHIP RESISTOR 47KOHM $\pm$ 5% 1/16W
R0216	0790026	CHIP RESISTOR 150 OHM $\pm$ 5% 1/16W	R0361	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0217	0790026	CHIP RESISTOR 150 OHM $\pm$ 5% 1/16W	R0362	0790042	CHIP RESISTOR 2.2KOHM $\pm$ 5% 1/16W
R0219	0790034	CHIP RESISTOR 560 OHM $\pm$ 5% 1/16W	R0366	0790042	CHIP RESISTOR 2.2KOHM $\pm$ 5% 1/16W
R0220	0790033	CHIP RESISTOR 470 OHM $\pm$ 5% 1/16W	R0401M	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0221	0790038	CHIP RESISTOR 1.2KOHM $\pm$ 5% 1/16W	R0404M	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W
R0222	0790031	CHIP RESISTOR 330 OHM $\pm$ 5% 1/16W	R0405L	0790066	CHIP RESISTOR 150KOHM $\pm$ 5% 1/16W
R0225	0790036	CHIP RESISTOR 820 OHM $\pm$ 5% 1/16W	R0405R	0790066	CHIP RESISTOR 150KOHM $\pm$ 5% 1/16W
R0226	0790048	CHIP RESISTOR 6.8KOHM $\pm$ 5% 1/16W	R0406M	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W
R0227	AQ00221R	CHIP RESISTOR 10KOHM $\pm$ 1% 1/16W	R0407M	0790045	CHIP RESISTOR 3.9KOHM $\pm$ 5% 1/16W
R0228	AQ00227R	CHIP RESISTOR 18KOHM $\pm$ 1% 1/16W	R0409	0790057	CHIP RESISTOR 33KOHM $\pm$ 5% 1/16W
R0229	0790031	CHIP RESISTOR 330 OHM $\pm$ 5% 1/16W	R0414M	0790077	CHIP RESISTOR 1MOHM $\pm$ 5% 1/16W
R0230	0790031	CHIP RESISTOR 330 OHM $\pm$ 5% 1/16W	R0415M	0790077	CHIP RESISTOR 1MOHM $\pm$ 5% 1/16W
R0231	0790048	CHIP RESISTOR 6.8KOHM $\pm$ 5% 1/16W	R0416M	0790077	CHIP RESISTOR 1MOHM $\pm$ 5% 1/16W
R0232	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W	R0419M	0790069	CHIP RESISTOR 0.27MOHM $\pm$ 5% 1/16W
R0233	0790032	CHIP RESISTOR 390 OHM $\pm$ 5% 1/16W	R0426	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0234	0790055	CHIP RESISTOR 22KOHM $\pm$ 5% 1/16W	R0431S	0790045	CHIP RESISTOR 3.9KOHM $\pm$ 5% 1/16W
R0235	0790033	CHIP RESISTOR 470 OHM $\pm$ 5% 1/16W	R0432S	0790064	CHIP RESISTOR 100KOHM $\pm$ 5% 1/16W
R0236	0790033	CHIP RESISTOR 470 OHM $\pm$ 5% 1/16W	R0434M	0790042	CHIP RESISTOR 2.2KOHM $\pm$ 5% 1/16W
R0237	0790034	CHIP RESISTOR 560 OHM $\pm$ 5% 1/16W	R0435S	0104121	CHIP RESISTOR 27KOHM $\pm$ 1% 1/10W
R0238	AQ00227R	CHIP RESISTOR 18KOHM $\pm$ 1% 1/16W	R0436M	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0239	AQ00221R	CHIP RESISTOR 10KOHM $\pm$ 1% 1/16W	R0437M	0790046	CHIP RESISTOR 4.7KOHM $\pm$ 5% 1/16W
R0248	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W	R0440M	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0249	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W	R0442	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W
R0250	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W	R0443M	0790058	CHIP RESISTOR 39KOHM $\pm$ 5% 1/16W
R0254	BM00135R	COIL	R0444M	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0255	BM00141R	FILTER	R0445M	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W
R0256	BM00135R	COIL	R0446S	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0258	0790055	CHIP RESISTOR 22KOHM $\pm$ 5% 1/16W	R0447M	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W
R0259	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W	R0447S	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0260	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W	R0448S	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0266	0790047	CHIP RESISTOR 5.6KOHM $\pm$ 5% 1/16W	R0449	0790048	CHIP RESISTOR 6.8KOHM $\pm$ 5% 1/16W
R0267	0790034	CHIP RESISTOR 560 OHM $\pm$ 5% 1/16W	R0450	0790047	CHIP RESISTOR 5.6KOHM $\pm$ 5% 1/16W
R0268	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W	R0451M	0790042	CHIP RESISTOR 2.2KOHM $\pm$ 5% 1/16W
R0274	0790059	CHIP RESISTOR 47KOHM $\pm$ 5% 1/16W	R0452M	0790038	CHIP RESISTOR 1.2KOHM $\pm$ 5% 1/16W
R0275	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W	R0453M	0790044	CHIP RESISTOR 3.3KOHM $\pm$ 5% 1/16W
R0276	0790046	CHIP RESISTOR 4.7KOHM $\pm$ 5% 1/16W	R0454M	0790035	CHIP RESISTOR 680 OHM $\pm$ 5% 1/16W
R0277	0790019	CHIP RESISTOR 47 OHM $\pm$ 5% 1/16W	R0456	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0278	BM00137R	FILTER	R0457L	0790044	CHIP RESISTOR 3.3KOHM $\pm$ 5% 1/16W
R0279	BM00137R	FILTER	R0457R	0790044	CHIP RESISTOR 3.3KOHM $\pm$ 5% 1/16W
R0283	AQ00231R	CHIP RESISTOR 24KOHM $\pm$ 1% 1/16W	R0458	0790024	CHIP RESISTOR 100 OHM $\pm$ 5% 1/16W [TYPE 665/565/563]
R0285	0790012	CHIP RESISTOR 12 OHM $\pm$ 5% 1/16	R0458	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W[TYPE 765]
R0286	0790012	CHIP RESISTOR 12 OHM $\pm$ 5% 1/16	R0458R	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0288	0790056	CHIP RESISTOR 27KOHM $\pm$ 5% 1/16W	R0461	0790059	CHIP RESISTOR 47KOHM $\pm$ 5% 1/16W
R0289	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W	R0462	0790038	CHIP RESISTOR 1.2KOHM $\pm$ 5% 1/16W
R0290	0790052	CHIP RESISTOR 12KOHM $\pm$ 5% 1/16W	R0463S	0790045	CHIP RESISTOR 3.9KOHM $\pm$ 5% 1/16W
R0291	0790035	CHIP RESISTOR 680 OHM $\pm$ 5% 1/16W [TYPE 565/563]	R0464S	0790028	CHIP RESISTOR 220 OHM $\pm$ 5% 1/16W

SYMBOL NO	P-NO	DESCRIPTION	SYMBOL NO	P-NO	DESCRIPTION
R0468S	0790077	CHIP RESISTOR 1MOHM $\pm$ 5% 1/16W	R0532	AQ01016R	CHIP RESISTOR 4.7KOHM $\pm$ 0.5% 1/16W
R0470M	0790059	CHIP RESISTOR 47KOHM $\pm$ 5% 1/16W	R0533	0790059	CHIP RESISTOR 47KOHM $\pm$ 5% 1/16W
R0471	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W	R0534	0790038	CHIP RESISTOR 1.2KOHM $\pm$ 5% 1/16W
R0471R	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W	R0539	AQ01021R	CHIP RESISTOR 10KOHM $\pm$ 0.5% 1/16W
R0472	0790045	CHIP RESISTOR 3.9KOHM $\pm$ 5% 1/16W	R0540	AQ01005R	CHIP RESISTOR 680OHM $\pm$ 0.5% 1/16W
R0472R	0790045	CHIP RESISTOR 3.9KOHM $\pm$ 5% 1/16W	R0541	AQ01016R	CHIP RESISTOR 4.7KOHM $\pm$ 0.5% 1/16W
R0473	0790059	CHIP RESISTOR 47KOHM $\pm$ 5% 1/16W [TYPE 665/565/563]	R0545	0790059	CHIP RESISTOR 47KOHM $\pm$ 5% 1/16W
R0473	0790075	CHIP RESISTOR 680KOHM $\pm$ 5% 1/16W [TYPE 765]	R0546	0790038	CHIP RESISTOR 1.2KOHM $\pm$ 5% 1/16W
R0473R	0790075	CHIP RESISTOR 680KOHM $\pm$ 5% 1/16W	R0549	0790076	CHIP RESISTOR 820KOHM $\pm$ 5% 1/16W
R0474	0790025	CHIP RESISTOR 120 OHM $\pm$ 5% 1/16W [TYPE 765]	R0550	AQ10274R	CHIP RESISTOR 46.4KOHM $\pm$ 0.5% 1/16W
R0474	0790046	CHIP RESISTOR 4.7KOHM $\pm$ 5% 1/16W [TYPE 665/565/563]	R0551	AQ01005R	CHIP RESISTOR 680OHM $\pm$ 0.5% 1/16W
R0474R	0790025	CHIP RESISTOR 120 OHM $\pm$ 5% 1/16W	R0552	AQ01016R	CHIP RESISTOR 4.7KOHM $\pm$ 0.5% 1/16W
R0475L	0790046	CHIP RESISTOR 4.7KOHM $\pm$ 5% 1/16W	R0553	0790064	CHIP RESISTOR 100KOHM $\pm$ 5% 1/16W
R0475R	0790046	CHIP RESISTOR 4.7KOHM $\pm$ 5% 1/16W	R0554	0790064	CHIP RESISTOR 100KOHM $\pm$ 5% 1/16W
R0476L	0790042	CHIP RESISTOR 2.2KOHM $\pm$ 5% 1/16W	R0556	AQ01005R	CHIP RESISTOR 680OHM $\pm$ 0.5% 1/16W
R0476R	0790042	CHIP RESISTOR 2.2KOHM $\pm$ 5% 1/16W	R0557	AQ01004R	CHIP RESISTOR 560OHM $\pm$ 0.5% 1/16W
R0477L	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W	R0558	AQ01016R	CHIP RESISTOR 4.7KOHM $\pm$ 0.5% 1/16W
R0477R	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W	R0561	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W
R0478L	0790059	CHIP RESISTOR 47KOHM $\pm$ 5% 1/16W	R0562	0790046	CHIP RESISTOR 4.7KOHM $\pm$ 5% 1/16W
R0478R	0790059	CHIP RESISTOR 47KOHM $\pm$ 5% 1/16W	R0566	0790048	CHIP RESISTOR 6.8KOHM $\pm$ 5% 1/16W
R0479L	0790047	CHIP RESISTOR 5.6KOHM $\pm$ 5% 1/16W	R0567	0790046	CHIP RESISTOR 4.7KOHM $\pm$ 5% 1/16W
R0479R	0790047	CHIP RESISTOR 5.6KOHM $\pm$ 5% 1/16W	R0568	AQ01016R	CHIP RESISTOR 4.7KOHM $\pm$ 0.5% 1/16W
R0480L	0790045	CHIP RESISTOR 3.9KOHM $\pm$ 5% 1/16W	R0569	AQ00213R	CHIP RESISTOR 5.1KOHM $\pm$ 1% 1/16W
R0480R	0790045	CHIP RESISTOR 3.9KOHM $\pm$ 5% 1/16W	R0583	0790023	CHIP RESISTOR 82 OHM $\pm$ 5% 1/16W
R0481L	0790048	CHIP RESISTOR 6.8KOHM $\pm$ 5% 1/16W	R0585	0790073	CHIP RESISTOR 470KOHM $\pm$ 5% 1/16W
R0481R	0790048	CHIP RESISTOR 6.8KOHM $\pm$ 5% 1/16W	R0597	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W
R0482L	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W	R0598	0790033	CHIP RESISTOR 470 OHM $\pm$ 5% 1/16W
R0482R	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W	R0599	0790033	CHIP RESISTOR 470 OHM $\pm$ 5% 1/16W
R0483L	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W	R0640	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W
R0483R	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W	R0641	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W
R0484S	0790057	CHIP RESISTOR 33KOHM $\pm$ 5% 1/16W	R0642	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W
R0485S	0790057	CHIP RESISTOR 33KOHM $\pm$ 5% 1/16W	R0643	0105815	CHIP RESISTOR 0.47 OHM $\pm$ 10% 1/4W
R0486	0790046	CHIP RESISTOR 4.7KOHM $\pm$ 5% 1/16W	R0644	0105815	CHIP RESISTOR 0.47 OHM $\pm$ 10% 1/4W
R0493L	0790045	CHIP RESISTOR 3.9KOHM $\pm$ 5% 1/16W	R0662	0790077	CHIP RESISTOR 1MOHM $\pm$ 5% 1/16W
R0493R	0790045	CHIP RESISTOR 3.9KOHM $\pm$ 5% 1/16W	R0664	0790002	CHIP RESISTOR 2.2 OHM $\pm$ 5% 1/16W
R0494	0790075	CHIP RESISTOR 680KOHM $\pm$ 5% 1/16W	R0665	0790002	CHIP RESISTOR 2.2 OHM $\pm$ 5% 1/16W
R0494R	0790075	CHIP RESISTOR 680KOHM $\pm$ 5% 1/16W	R0666	0790002	CHIP RESISTOR 2.2 OHM $\pm$ 5% 1/16W
R0495	0790039	CHIP RESISTOR 1.5KOHM $\pm$ 5% 1/16W [TYPE 665/565]	R0667	0790058	CHIP RESISTOR 39KOHM $\pm$ 5% 1/16W
R0495	0790045	CHIP RESISTOR 3.9KOHM $\pm$ 5% 1/16W [TYPE 765]	R0668	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W
R0495R	0790045	CHIP RESISTOR 3.9KOHM $\pm$ 5% 1/16W	R0671	0790075	CHIP RESISTOR 680KOHM $\pm$ 5% 1/16W
R0499	0790025	CHIP RESISTOR 120 OHM $\pm$ 5% 1/16W	R0672	0790055	CHIP RESISTOR 22KOHM $\pm$ 5% 1/16W
R0499R	0790025	CHIP RESISTOR 120 OHM $\pm$ 5% 1/16W	R0681	0790077	CHIP RESISTOR 1MOHM $\pm$ 5% 1/16W
R0501	0790049	CHIP RESISTOR 8.2KOHM $\pm$ 5% 1/16W	R0682	0790077	CHIP RESISTOR 1MOHM $\pm$ 5% 1/16W
R0502	0790049	CHIP RESISTOR 8.2KOHM $\pm$ 5% 1/16W	R0691	0790041	CHIP RESISTOR 1.8KOHM $\pm$ 5% 1/16W
R0504	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W	R0692	0790041	CHIP RESISTOR 1.8KOHM $\pm$ 5% 1/16W
R0505	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W	R0693	0790041	CHIP RESISTOR 1.8KOHM $\pm$ 5% 1/16W
R0506	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W	R0694	0790047	CHIP RESISTOR 5.6KOHM $\pm$ 5% 1/16W
R0507	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W	R0695	0790047	CHIP RESISTOR 5.6KOHM $\pm$ 5% 1/16W
R0508	0790049	CHIP RESISTOR 8.2KOHM $\pm$ 5% 1/16W	R0696	0790047	CHIP RESISTOR 5.6KOHM $\pm$ 5% 1/16W
R0510	AQ00238R	CHIP RESISTOR 47KOHM $\pm$ 1% 1/16W	R0701	0790058	CHIP RESISTOR 39KOHM $\pm$ 5% 1/16W
R0511	0790057	CHIP RESISTOR 33KOHM $\pm$ 5% 1/16W	R0702	0790036	CHIP RESISTOR 820 OHM $\pm$ 5% 1/16W
R0512	0790044	CHIP RESISTOR 3.3KOHM $\pm$ 5% 1/16W	R0734	0790036	CHIP RESISTOR 820 OHM $\pm$ 5% 1/16W
R0513	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W	R0761	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0514	0790049	CHIP RESISTOR 8.2KOHM $\pm$ 5% 1/16W	R0762	0790036	CHIP RESISTOR 820 OHM $\pm$ 5% 1/16W
R0516	0790049	CHIP RESISTOR 8.2KOHM $\pm$ 5% 1/16W	R0763	0790026	CHIP RESISTOR 150 OHM $\pm$ 5% 1/16W
R0517	0790049	CHIP RESISTOR 8.2KOHM $\pm$ 5% 1/16W	R0764	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0518	0790049	CHIP RESISTOR 8.2KOHM $\pm$ 5% 1/16W	R0765	0790039	CHIP RESISTOR 1.5KOHM $\pm$ 5% 1/16W
R0519	0790049	CHIP RESISTOR 8.2KOHM $\pm$ 5% 1/16W	R0766	0790036	CHIP RESISTOR 820 OHM $\pm$ 5% 1/16W
R0522	0790049	CHIP RESISTOR 8.2KOHM $\pm$ 5% 1/16W	R0767	0790039	CHIP RESISTOR 1.5KOHM $\pm$ 5% 1/16W
R0525	0790049	CHIP RESISTOR 8.2KOHM $\pm$ 5% 1/16W	R0771	0790049	CHIP RESISTOR 8.2KOHM $\pm$ 5% 1/16W
R0529	AQ00211R	CHIP RESISTOR 4.3KOHM $\pm$ 1% 1/16W	R0772	0790032	CHIP RESISTOR 390 OHM $\pm$ 5% 1/16W
R0531	AQ01004R	CHIP RESISTOR 560OHM $\pm$ 0.5% 1/16W	R0773	0790042	CHIP RESISTOR 2.2KOHM $\pm$ 5% 1/16W
			R0774	0790032	CHIP RESISTOR 390 OHM $\pm$ 5% 1/16W
			R0775	0790044	CHIP RESISTOR 3.3KOHM $\pm$ 5% 1/16W
			R0776	0790044	CHIP RESISTOR 3.3KOHM $\pm$ 5% 1/16W

SYMBOL NO	P-NO	DESCRIPTION	SYMBOL NO	P-NO	DESCRIPTION
R0777	0790045	CHIP RESISTOR 3.9KOHM $\pm$ 5% 1/16W	R0979	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0778	0790047	CHIP RESISTOR 5.6KOHM $\pm$ 5% 1/16W	R0980	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0901	0790064	CHIP RESISTOR 100KOHM $\pm$ 5% 1/16W	R0981	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0902	0790064	CHIP RESISTOR 100KOHM $\pm$ 5% 1/16W	R0982	0790057	CHIP RESISTOR 33KOHM $\pm$ 5% 1/16W
R0903	0790068	CHIP RESISTOR 220KOHM $\pm$ 5% 1/16W	R0983	0790057	CHIP RESISTOR 33KOHM $\pm$ 5% 1/16W
R0904	0790064	CHIP RESISTOR 100KOHM $\pm$ 5% 1/16W	R0984	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0905	0790064	CHIP RESISTOR 100KOHM $\pm$ 5% 1/16W	R0985	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0906	0790059	CHIP RESISTOR 47KOHM $\pm$ 5% 1/16W	R0992	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0907	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W	R1001	0790048	CHIP RESISTOR 6.8KOHM $\pm$ 5% 1/16W
R0908	0105217	CHIP RESISTOR 150KOHM $\pm$ 0.5% 1/16W	R1002	0790024	CHIP RESISTOR 100 OHM $\pm$ 5% 1/16W
R0909	AQ01031R	CHIP RESISTOR 56KOHM $\pm$ 0.5% 1/16W	R1003	0790077	CHIP RESISTOR 1MOHM $\pm$ 5% 1/16W
R0912	0790077	CHIP RESISTOR 1MOHM $\pm$ 5% 1/16W	R1004	0790064	CHIP RESISTOR 100KOHM $\pm$ 5% 1/16W
R0913	0790064	CHIP RESISTOR 100KOHM $\pm$ 5% 1/16W	R1005	0790077	CHIP RESISTOR 1MOHM $\pm$ 5% 1/16W
R0914	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W	R1006	0790064	CHIP RESISTOR 100KOHM $\pm$ 5% 1/16W
R0915	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W	R1009	0103823	CHIP RESISTOR 220HM $\pm$ 5% 0.1W
R0916	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W	R1123	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0917	0790059	CHIP RESISTOR 47KOHM $\pm$ 5% 1/16W	R1124	0790057	CHIP RESISTOR 33KOHM $\pm$ 5% 1/16W
R0918	0790059	CHIP RESISTOR 47KOHM $\pm$ 5% 1/16W	R1125	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0919	0790059	CHIP RESISTOR 47KOHM $\pm$ 5% 1/16W	R1126	0790064	CHIP RESISTOR 100KOHM $\pm$ 5% 1/16W
R0920	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W	R1127	0790064	CHIP RESISTOR 100KOHM $\pm$ 5% 1/16W
R0921	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W	R1136	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0922	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W	R1153	0790046	CHIP RESISTOR 4.7KOHM $\pm$ 5% 1/16W
R0923	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W	R1154	0790055	CHIP RESISTOR 22KOHM $\pm$ 5% 1/16W
R0924	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W	R1155	0790055	CHIP RESISTOR 22KOHM $\pm$ 5% 1/16W
R0925	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W	R1156	0790059	CHIP RESISTOR 47KOHM $\pm$ 5% 1/16W
R0926	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W	R1157	0790057	CHIP RESISTOR 33KOHM $\pm$ 5% 1/16W
R0928	0790075	CHIP RESISTOR 680KOHM $\pm$ 5% 1/16W	R1158	0790034	CHIP RESISTOR 560 OHM $\pm$ 5% 1/16W
R0929	0790077	CHIP RESISTOR 1MOHM $\pm$ 5% 1/16W	R1161	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0930	0790077	CHIP RESISTOR 1MOHM $\pm$ 5% 1/16W	R1164	0790055	CHIP RESISTOR 22KOHM $\pm$ 5% 1/16W
R0931	0790077	CHIP RESISTOR 1MOHM $\pm$ 5% 1/16W	R1165	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0932	0790077	CHIP RESISTOR 1MOHM $\pm$ 5% 1/16W	R1166	0790055	CHIP RESISTOR 22KOHM $\pm$ 5% 1/16W
R0933	0790077	CHIP RESISTOR 1MOHM $\pm$ 5% 1/16W	R1167	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0934	0790077	CHIP RESISTOR 1MOHM $\pm$ 5% 1/16W	R1170	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0935	0790077	CHIP RESISTOR 1MOHM $\pm$ 5% 1/16W	R1171	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0936	0790077	CHIP RESISTOR 1MOHM $\pm$ 5% 1/16W	R1172	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0937	0790059	CHIP RESISTOR 47KOHM $\pm$ 5% 1/16W	R1173	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0941	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W	R1174	0790064	CHIP RESISTOR 100KOHM $\pm$ 5% 1/16W
R0942	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W	R1175	0790064	CHIP RESISTOR 100KOHM $\pm$ 5% 1/16W
R0943	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W	R1178	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0944	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W	R1179	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0945	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W	R1185	0790064	CHIP RESISTOR 100KOHM $\pm$ 5% 1/16W
R0946	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W	R1186	0790064	CHIP RESISTOR 100KOHM $\pm$ 5% 1/16W
R0948	0790046	CHIP RESISTOR 4.7KOHM $\pm$ 5% 1/16W	R1188	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0949	AQ00221R	CHIP RESISTOR 10KOHM $\pm$ 1% 1/16W	R1189	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0950	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W	R1190	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W
R0952	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W	R1192	BM00141R	FILTER
R0953	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W	R1193	BM00141R	FILTER
R0954	AQ00245R	CHIP RESISTOR 82KOHM $\pm$ 1% 1/16W	R1201	0790039	CHIP RESISTOR 1.5KOHM $\pm$ 5% 1/16W
R0955	AQ00227R	CHIP RESISTOR 18KOHM $\pm$ 1% 1/16W	R1202	0790069	CHIP RESISTOR 0.27MOHM $\pm$ 5% 1/16W
R0956	AQ00234R	CHIP RESISTOR 33KOHM $\pm$ 1% 1/16W	R1203	0790053	CHIP RESISTOR 15KOHM $\pm$ 5% 1/16W
R0957	AQ00247R	CHIP RESISTOR 100KOHM $\pm$ 1% 1/16W	R1204	0790064	CHIP RESISTOR 100KOHM $\pm$ 5% 1/16W
R0958	AQ00236R	CHIP RESISTOR 39KOHM $\pm$ 1% 1/16W	R1205	0790064	CHIP RESISTOR 100KOHM $\pm$ 5% 1/16W
R0959	0790046	CHIP RESISTOR 4.7KOHM $\pm$ 5% 1/16W	R1206	0790077	CHIP RESISTOR 1MOHM $\pm$ 5% 1/16W
R0960	AQ00221R	CHIP RESISTOR 10KOHM $\pm$ 1% 1/16W	R1207	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W
R0961	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W	R1208	0790054	CHIP RESISTOR 18KOHM $\pm$ 5% 1/16W
R0965	0790077	CHIP RESISTOR 1MOHM $\pm$ 5% 1/16W	R1209	0790067	CHIP RESISTOR 180KOHM $\pm$ 5% 1/16W
R0966	0790067	CHIP RESISTOR 180KOHM $\pm$ 5% 1/16W	R1210	0790053	CHIP RESISTOR 15KOHM $\pm$ 5% 1/16W
R0967	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W	R1211	0790054	CHIP RESISTOR 18KOHM $\pm$ 5% 1/16W
R0969	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W	R1212	0790067	CHIP RESISTOR 180KOHM $\pm$ 5% 1/16W
R0970	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W	R1213	0790053	CHIP RESISTOR 15KOHM $\pm$ 5% 1/16W
R0971	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W	R1214	0790052	CHIP RESISTOR 12KOHM $\pm$ 5% 1/16W
R0974	0790051	CHIP RESISTOR 10KOHM $\pm$ 5% 1/16W	R1215	0790052	CHIP RESISTOR 12KOHM $\pm$ 5% 1/16W
R0976	0790046	CHIP RESISTOR 4.7KOHM $\pm$ 5% 1/16W	R1216	AQ00231R	CHIP RESISTOR 24KOHM $\pm$ 1% 1/16W
R0977	0790017	CHIP RESISTOR 33 OHM $\pm$ 5% 1/16W	R1218	0790064	CHIP RESISTOR 100KOHM $\pm$ 5% 1/16W
R0978	0790037	CHIP RESISTOR 1KOHM $\pm$ 5% 1/16W	R1220	0790044	CHIP RESISTOR 3.3KOHM $\pm$ 5% 1/16W

SYMBOL NO	P-NO	DESCRIPTION	SYMBOL NO	P-NO	DESCRIPTION
R1221	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W	IC0001	CK22711R	IC MM6564XFBE
R1222	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W	IC0101	1366631	IC HA118189MPER
R1223	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W	IC0201	CK24801U	IC MB87L1551PMT2
R1225	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	IC0202	CK21332U	IC HD49323AF
R1226	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	IC0203	CK12061R	IC UPD16510GR
R1227	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W	IC0301	CK22491R	IC UPC5020GS129
R1303	AQ00214R	CHIP RESISTOR 5.6KOHM+-1% 1/16W	IC0350	CK22501R	IC UPC5020GR-125-8JG
R1312	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W	IC0401	CK12241	IC HA118193F
R1313	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W	IC0401	CK20272R	IC LA7458W
R1316	0790027	CHIP RESISTOR 180OHM+-5% 1/16W	IC0461S	CK16471R	IC TDA7052AT
R1317	0790027	CHIP RESISTOR 180OHM+-5% 1/16W	IC0471S	CK22341R	IC NJM2112V-TE1
R1403	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W	IC0551	CK23901U	IC BA9736KV
R1404	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W	IC0553	CK20191R	IC P020WZ51
R1405	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W	IC0631	CK18331R	IC LB1950V-TRM
R1406	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W	IC0651	CK22031R	IC LB1991V-TRM
R1407	0790072	CHIP RESISTOR 390KOHM+-5% 1/16W	IC0671	1366651	IC BA6417F
R1408	0790072	CHIP RESISTOR 390KOHM+-5% 1/16W	IC0701	CE10171R	MODULE GP1U101X
R1409	AQ00236R	CHIP RESISTOR 39KOHM+-1% 1/16W	IC0901	CK24961U	IC CXP87360-132R
R1410	AQ00236R	CHIP RESISTOR 39KOHM+-1% 1/16W	IC0902	CK21712R	IC NJU7285BV
R1411	AQ00269R	CHIP RESISTOR 680KOHM+-1% 0.63W	IC0904	CK16995R	IC UPD6461GS-947-E1
R1412	AQ00269R	CHIP RESISTOR 680KOHM+-1% 0.63W	IC1105	CK24721R	IC AT25160N
R1413	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W	IC1111	CK18021R	IC MB88347PFV
R1414	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W	IC1201	CK20621R	IC UPC5023GS-147-GJG
R1416	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	IC1301	CK17992R	IC UPD16833AG3
R1424	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	IC1401	FU10323	SENSOR, GYRO
R1425	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	IC1402	FU10324	SENSOR, GYRO
R5307	AQ00198R	CHIP RESISTOR 1.5KOHM+-1% 1/16W	IC1403	CK24841R	IC NJU7018M
R5308	AQ00212R	CHIP RESISTOR 4.7KOHM+-1% 1/16W	IC5501	CK18431R	IC TL5001CD
R5330	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	Q0001	CA11901	TRANSISTOR UPA1770R
R5332	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	Q0002	CA10271R	TRANSISTOR 2SB1424R
R5333	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W	Q0003	1323279	TRANSISTOR DTC114YE
R5334	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W	Q0004	CA11941R	TRANSISTOR 2SK3019
R5339	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W	Q0101	1323286	TRANSISTOR UMH9N
R5340	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W	Q0102	1323294	TRANSISTOR 2SA1774RS
R5502	AQ00249R	CHIP RESISTOR 120KOHM+-1% 1/16W	Q0103	1323294	TRANSISTOR 2SA1774RS
R5503	AQ00232R	CHIP RESISTOR 27KOHM+-1% 1/16W	Q0104	CA10162R	TRANSISTOR 2SA1577Q
R5504	AQ00221R	CHIP RESISTOR 10KOHM+-1% 1/16W	Q0105	1323279	TRANSISTOR DTC114YE
R5505	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W	Q0106	CA10162R	TRANSISTOR 2SA1577Q
R5506	AQ00214R	CHIP RESISTOR 5.6KOHM+-1% 1/16W	Q0107	1323279	TRANSISTOR DTC114YE
R5508	AQ00216R	CHIP RESISTOR 6.8KOHM+-1% 1/16W	Q0109	1323294	TRANSISTOR 2SA1774RS
R5509	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W	Q0110	1323294	TRANSISTOR 2SA1774RS
R5510	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W	Q0111	1323291	TRANSISTOR 2SC4617
R5511	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W	Q0112	1323291	TRANSISTOR 2SC4617
R5522	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W	Q0113	1323252	TRANSISTOR XP4501
R5523	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W	Q0114	1323286	TRANSISTOR UMH9N
R5524	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W	Q0115	1323252	TRANSISTOR XP4501
R5525	0104274	CHIP RESISTOR 1.5KOHM+-1% 1/10W	Q0117	1323291	TRANSISTOR 2SC4617
D0001	CC11321R	DIODE MA726	Q0118	1323279	TRANSISTOR DTC114YE
D0002	CC10291R	DIODE 1SS353SP	Q0119	1323291	TRANSISTOR 2SC4617
D0003	5337422	DIODE DA221	Q0120	1323294	TRANSISTOR 2SA1774RS
D0350	5337422	DIODE DA221	Q0130	1323279	TRANSISTOR DTC114YE
D0552	CC10291R	DIODE 1SS353SP	Q0131	1323294	TRANSISTOR 2SA1774RS
D0553	CC10291R	DIODE 1SS353SP	Q0132	CA11273R	TRANSISTOR 2SA1037K-S
D0554	CC10291R	DIODE 1SS353SP	Q0201	1323294	TRANSISTOR 2SA1774RS
D0555	CC10291R	DIODE 1SS353SP	Q0202	1323294	TRANSISTOR 2SA1774RS
D0556	CC10291R	DIODE 1SS353SP	Q0204	1323252	TRANSISTOR XP4501
D0557	CC10291R	DIODE 1SS353SP	Q0206	1323279	TRANSISTOR DTC114YE
D0901	CC10291R	DIODE 1SS353SP	Q0209	1323291	TRANSISTOR 2SC4617
D0902	CC10291R	DIODE 1SS353SP	Q0210	1323291	TRANSISTOR 2SC4617
D0905	CC11321R	DIODE MA726	Q0303	1323291	TRANSISTOR 2SC4617
D1002	CC10291R	DIODE 1SS353SP	Q0304	1323279	TRANSISTOR DTC114YE
D1101	CC10291R	DIODE 1SS353SP	Q0350	1323294	TRANSISTOR 2SA1774RS
D1301	5337422	DIODE DA221	Q0351	1323294	TRANSISTOR 2SA1774RS
D1302	CC10291R	DIODE 1SS353SP	Q0352	1323294	TRANSISTOR 2SA1774RS
D5301	CC10161R	DIODE MA781WK	Q0401	1323279	TRANSISTOR DTC114YE

SYMBOL NO	P-NO	DESCRIPTION	SYMBOL NO	P-NO	DESCRIPTION
Q0401R	1323279	TRANSISTOR DTC114YE	T5501	BC10381R	TRANSFORMER
Q0402M	1323278	TRANSISTOR DTA114YE	L0101	BA10334R	COIL 10UH
Q0403M	1323279	TRANSISTOR DTC114YE	L0102	BA10142R	COIL
Q0404M	1323291	TRANSISTOR 2SC4617	L0103	BA10315R	COIL 150UH
Q0405	1323291	TRANSISTOR 2SC4617	L0104	BA10147R	COIL 22UH
Q0406	1323291	TRANSISTOR 2SC4617	L0105	BA10143R	COIL 10UH
Q0406R	1323291	TRANSISTOR 2SC4617	L0106	BA10145R	COIL
Q0407M	1323294	TRANSISTOR 2SA1774RS	L0107	BA10154R	COIL 82UH
Q0461	CA10162R	TRANSISTOR 2SA1577Q	L0108	0773096	COIL, CHOKE 220UH
Q0462	1323279	TRANSISTOR DTC114YE	L0110	BA10148R	COIL 27UH
Q0463S	1323279	TRANSISTOR DTC114YE	L0111	BA10582R	COIL 47UH
Q0471	1323291	TRANSISTOR 2SC4617	L0201	BA10577R	COIL 10UH
Q0471R	1323291	TRANSISTOR 2SC4617	L0202	BA10575R	COIL
Q0474	1323291	TRANSISTOR 2SC4617	L0203	BA10575R	COIL
Q0475S	1323271	TRANSISTOR DTC144EE	L0209	BA10577R	COIL 10UH
Q0551	1308011	TRANSISTOR MPL1	L0210	BA10142R	COIL
Q0552	CA10271R	TRANSISTOR 2SB1424	L0211	0773117	CHOKE COIL 8.2UH+-5%
Q0553	1308011	TRANSISTOR MPL1	L0214	0773131	CHOKE COIL 82UH+-5%
Q0555	CA10271R	TRANSISTOR 2SB1424	L0301	BA10582R	COIL 47UH
Q0556	1323279	TRANSISTOR DTC114YE	L0350	BA10577R	COIL 10UH
Q0557	CA10271R	TRANSISTOR 2SB1424	L0401	BA10582R	COIL 47UH
Q0559	1308011	TRANSISTOR MPL1	L0402M	BA10582R	COIL 47UH
Q0561	1308011	TRANSISTOR MPL1	L0461	BA10334R	COIL 10UH
Q0562	1308011	TRANSISTOR MPL1	L0551	BA10691R	COIL
Q0563	1323279	TRANSISTOR DTC114YE	L0552	BA10693R	COIL
Q0570	CA10271R	TRANSISTOR 2SB1424	L0554	BA10695R	COIL
Q0571	1323291	TRANSISTOR 2SC4617	L0558	BA10577R	COIL 10UH
Q0572	1323287	TRANSISTOR UMD9N	L0559	BA10582R	COIL 47UH
Q0573	1323287	TRANSISTOR UMD9N	L0560	BA10582R	COIL 47UH
Q0574	1323287	TRANSISTOR UMD9N	L0561	BA10695R	COIL
Q0575	1323291	TRANSISTOR 2SC4617	L0563	BA10691R	COIL
Q0576	1323291	TRANSISTOR 2SC4617	L0564	BA10695R	COIL
Q0577	1323291	TRANSISTOR 2SC4617	L0565	BA10695R	COIL
Q0578	1323287	TRANSISTOR UMD9N	L0566	BA10582R	COIL 47UH
Q0579	1323279	TRANSISTOR DTC114YE	L0567	BA10582R	COIL 47UH
Q0580	1323252	TRANSISTOR XP4501	L0568	BA10582R	COIL 47UH
Q0701	1323279	TRANSISTOR DTC114YE	L0569	BA10582R	COIL 47UH
Q0732	1323279	TRANSISTOR DTC114YE	L0701	BA10579R	COIL 22UH
Q0901	1323294	TRANSISTOR 2SA1774RS	L0731	BA10577R	COIL 10UH
Q0902	1323291	TRANSISTOR 2SC4617	L0732	BA10579R	COIL 22UH
Q0904	1323294	TRANSISTOR 2SA1774RS	L0901	BA10577R	COIL 10UH
Q0905	5328975	TRANSISTOR 2SC2412K	L0902	BA10577R	COIL 10UH
Q0909	1323279	TRANSISTOR DTC114YE	L0903	BA10582R	COIL 47UH
Q0910	1323278	TRANSISTOR DTA114YE	L1103	BA10577R	COIL 10UH
Q1001	5328221	TRANSISTOR 2SC2620-QC	L5301	BA10577R	COIL 10UH
Q1201	1323291	TRANSISTOR 2SC4617	L5302	BA10584R	COIL 100UH
Q1202	1323291	TRANSISTOR 2SC4617	L5303	BA10584R	COIL 100UH
Q1203	1323142	TRANSISTOR 2SC2411K	L5304	BA10577R	COIL 10UH
Q1301	1323286	TRANSISTOR UMH9N	L5501	BA10333R	COIL 4.7UH
Q1401	1323279	TRANSISTOR DTC114YE	L5502	BA10693R	COIL
Q1402	1323252	TRANSISTOR XP4501	L5503	BA10698R	COIL
Q5303	1323279	TRANSISTOR DTC114YE	LED0701	CC10772R	DIODE SML-010LT
Q5304	1323279	TRANSISTOR DTC114YE	LED0751	CC11251R	DIODE SML-010MT
Q5305	1323293	TRANSISTOR 2SC4617 (R/S)	X0201	BL11091R	CRYSTAL 28.6MHZ
Q5306	1323279	TRANSISTOR DTC114YE	X0901	BL10901R	CRYSTAL
Q5307	1323279	TRANSISTOR DTC114YE	X0902	BL10311R	CRYSTAL
Q5501	1323272	TRANSISTOR DTA144EE	CN0201	EK11361	FLEXIBLE, CONNECTOR
Q5502	1323279	TRANSISTOR DTC114YE	CN0903	EF10265	CONNECTOR
Q5505	1323293	TRANSISTOR 2SC4617 (R/S)	△F0551	FM10261R	FUSE 1.5A
Q5506	1323293	TRANSISTOR 2SC4617 (R/S)	△F0552	FM10261R	FUSE 1.5A
Q5510	1323293	TRANSISTOR 2SC4617 (R/S)	△F0553	FM10261R	FUSE 1.5A
Q5511	1308011	TRANSISTOR MPL1	PG0001	1830309	CONNECTOR
Q5512	1323012	TRANSISTOR 2SC3647	PG0101	EA11472R	PLUG
Q5513	1323012	TRANSISTOR 2SC3647	PG0201	1830118	CONNECTOR
T0551	BC10331R	TRANS	PG0301	EA11043R	CONNECTOR

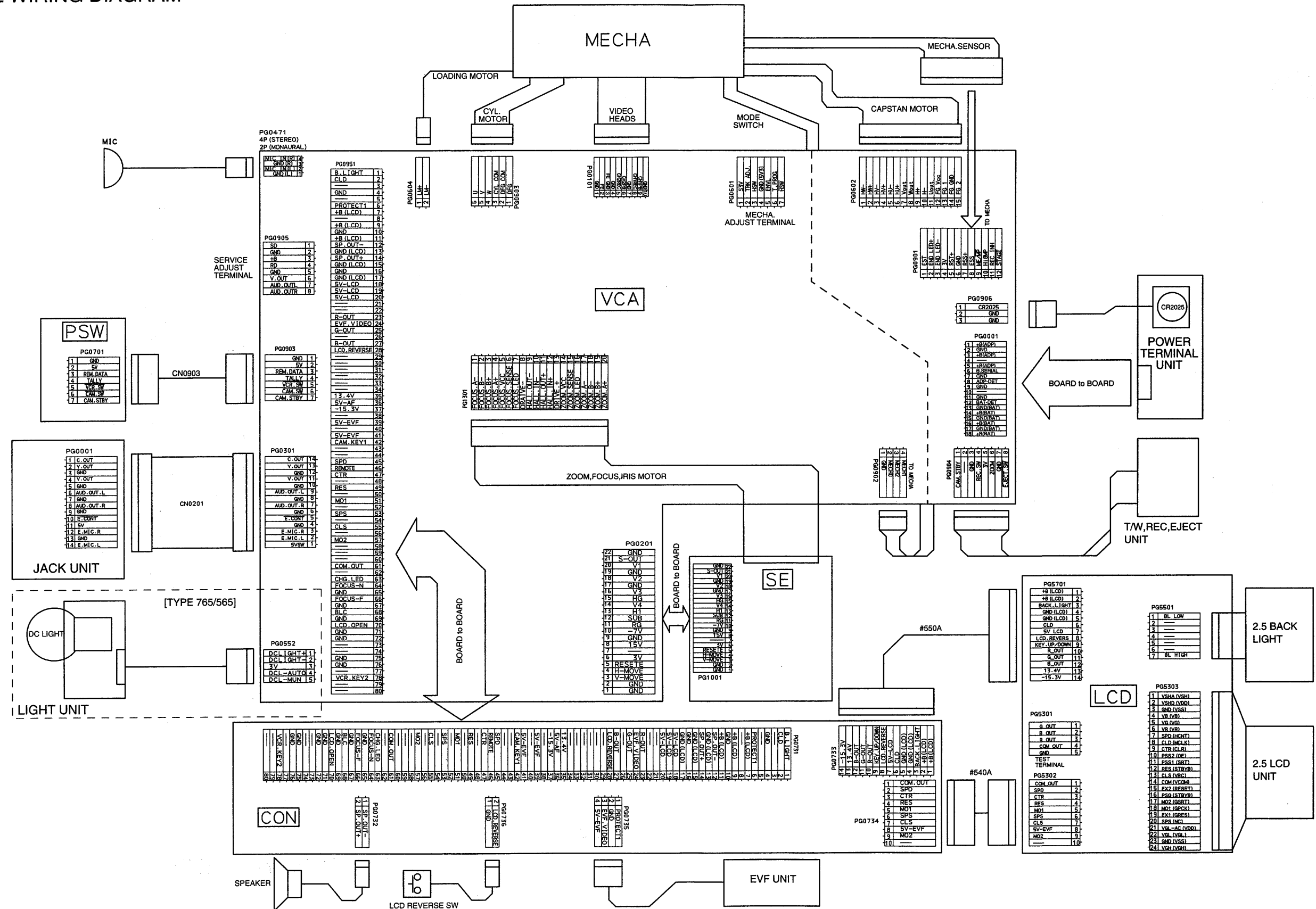
SYMBOL NO	P-NO	DESCRIPTION	SYMBOL NO	P-NO	DESCRIPTION
PG0471	5668671	MINI PLUG[TYPE 665/565/563]			
PG0471	5668673	MINI PLUG[TYPE 765]			
PG0552	5669194	PLUG			
PG0601	5692362	MINI PLUG			
PG0602	EA11474R	PLUG			
PG0603	EA11471R	PLUG			
PG0604	5668671	MINI PLUG			
PG0701	5669199	PLUG			
PG0731	EA10991R	CONNECTOR			
PG0732	5669191	PLUG			
PG0733	EA11364R	CONNECTOR			
PG0734	EA11359R	CONNECTOR			
PG0735	5669193	MINI PLUG			
PG0736	5669166	PLUG			
PG0901	EA11473R	PLUG			
PG0902	EA10642R	CONNECTOR			
PG0903	5669199	PLUG			
PG0904	EA11741R	CONNECTOR			
PG0905	5669196	PLUG			
PG0906	5669167	MINI PLUG			
PG0951	EA10971R	PLUG			
PG1001	1830117	CONNECTOR			
PG1301	EA10346R	PLUG			
PG5301	EA11476R	CONNECTOR			
PG5302	EA11359R	CONNECTOR			
PG5303	EA11591R	CONNECTOR			
PG5501	EA11477R	CONNECTOR			
PG5701	EA11364R	CONNECTOR			
SW0701	FB10321R	SWITCH			
SW0702	FB10201R	SWITCH			
SW0761	1742012	SWITCH			
SW0762	1742012	SWITCH			
SW0763	1742012	SWITCH			
SW0764	FB10272R	SWITCH			
SW0765	1742012	SWITCH			
SW0766	1742012	SWITCH			
SW0767	1742012	SWITCH			
SW0768	FB10272R	SWITCH			
SW0769	1742012	SWITCH			
SW0770	1742012	SWITCH			
SW0771	FB10272R	SWITCH			
SW0772	FB10272R	SWITCH			
SW0773	5635331	SWITCH			
SW0781	1742012	SWITCH			
SW5302	FB10272R	SWITCH			
SW5303	FB10272R	SWITCH			

MEMO

CHAPTER 6

SCHEMATIC, CIRCUIT BOARD AND BLOCK DIAGRAMS/ MICROPROCESSOR PIN FUNCTION TABLE

INTERNAL WIRING DIAGRAM



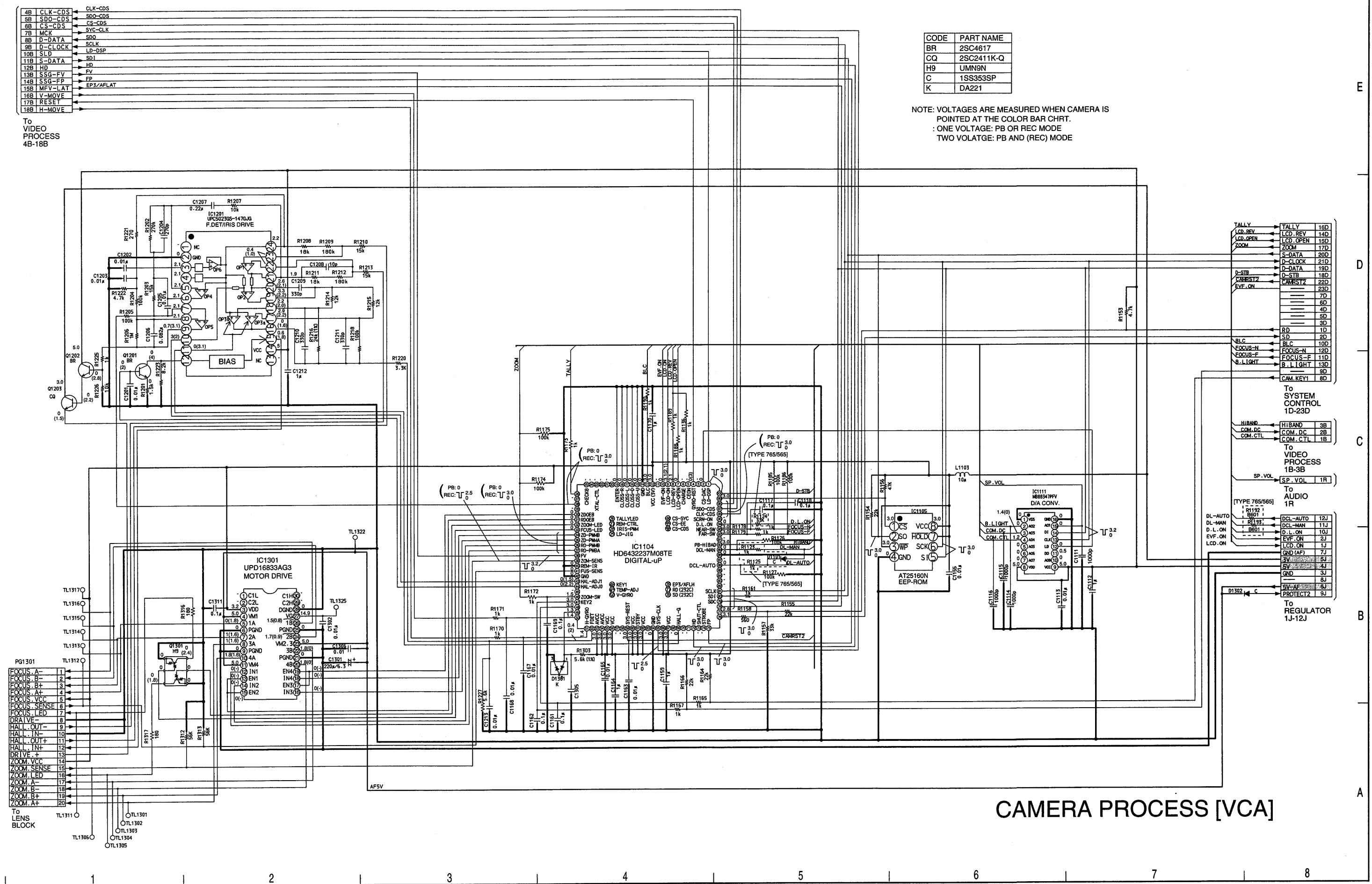
A	E	C	D	E
---	---	---	---	---

1-A IC1001-7 1.1Vp-p 0.2V/ 20μsec.cm REC	3-A IC1001-14 4.3Vp-p 1V/ 100n sec.cm REC
2-A IC1001-13 4.3Vp-p 1V/ 100n sec.cm REC	



SENSOR/GYRO	6 - 3	6 - 4	SENSOR/GYRO
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CAMERA PROCESS [VCA] SCHEMATIC DIAGRAM

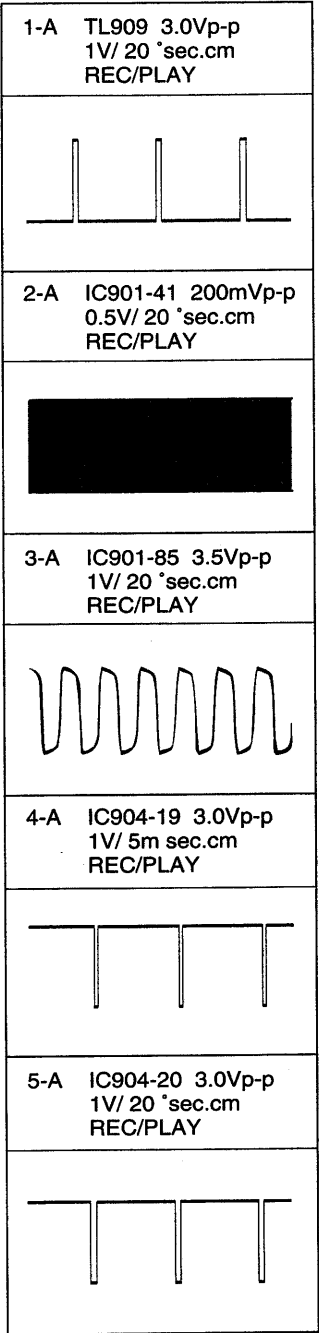


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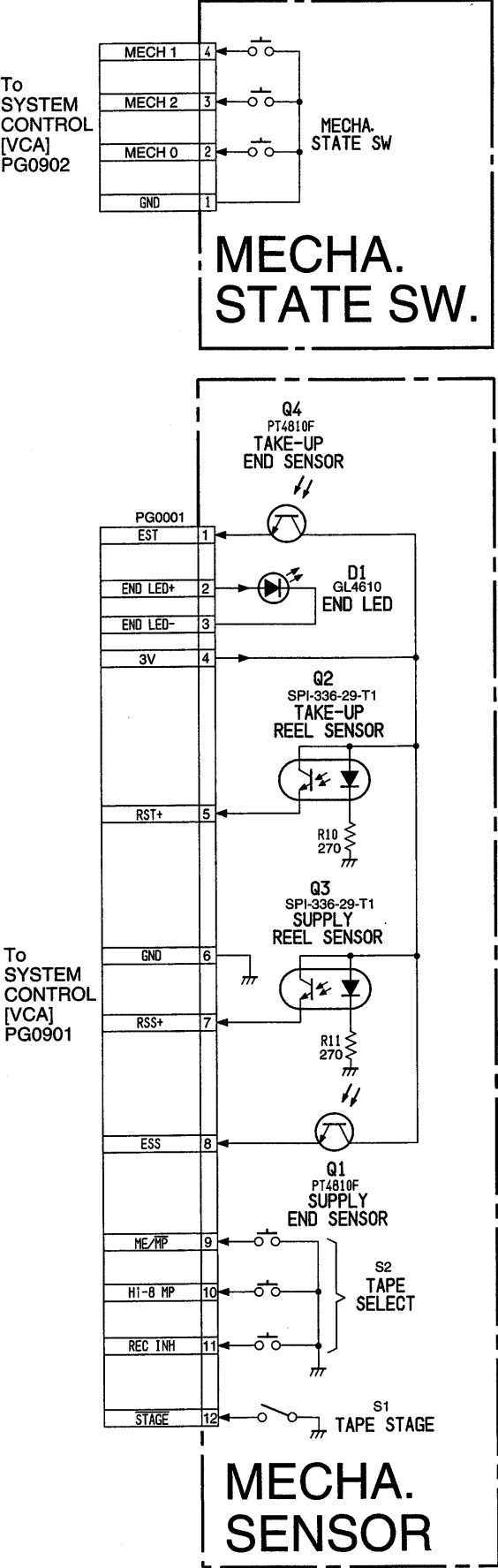
NOTE:ONE VOLTAGE:PB OR REC MODE
TWO VOLTAGES:PB AND (REC) MODE
○ — : WAVEFORMS No.



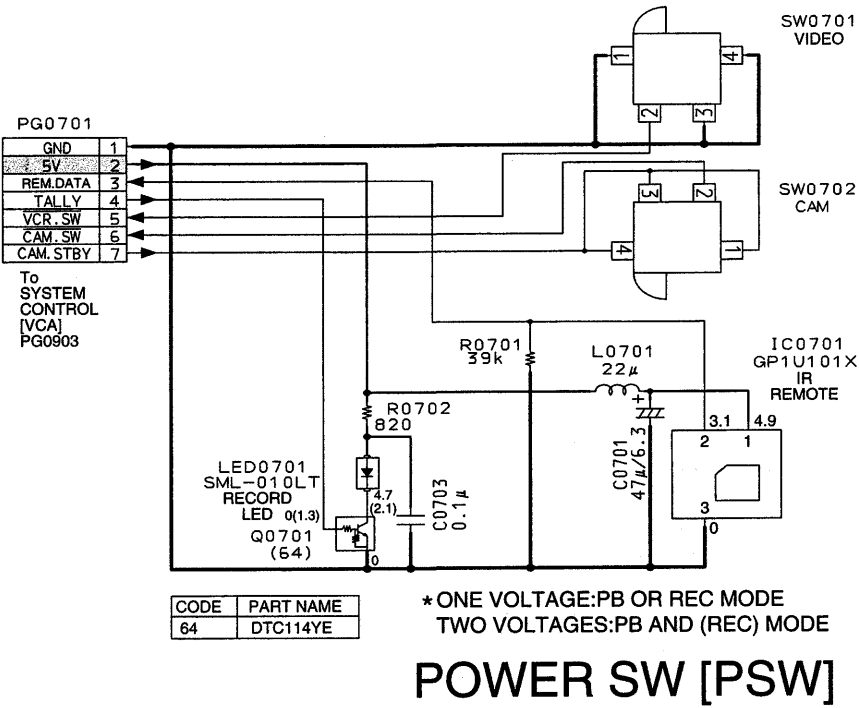
SYSTEM CONTROL
WAVEFORMES



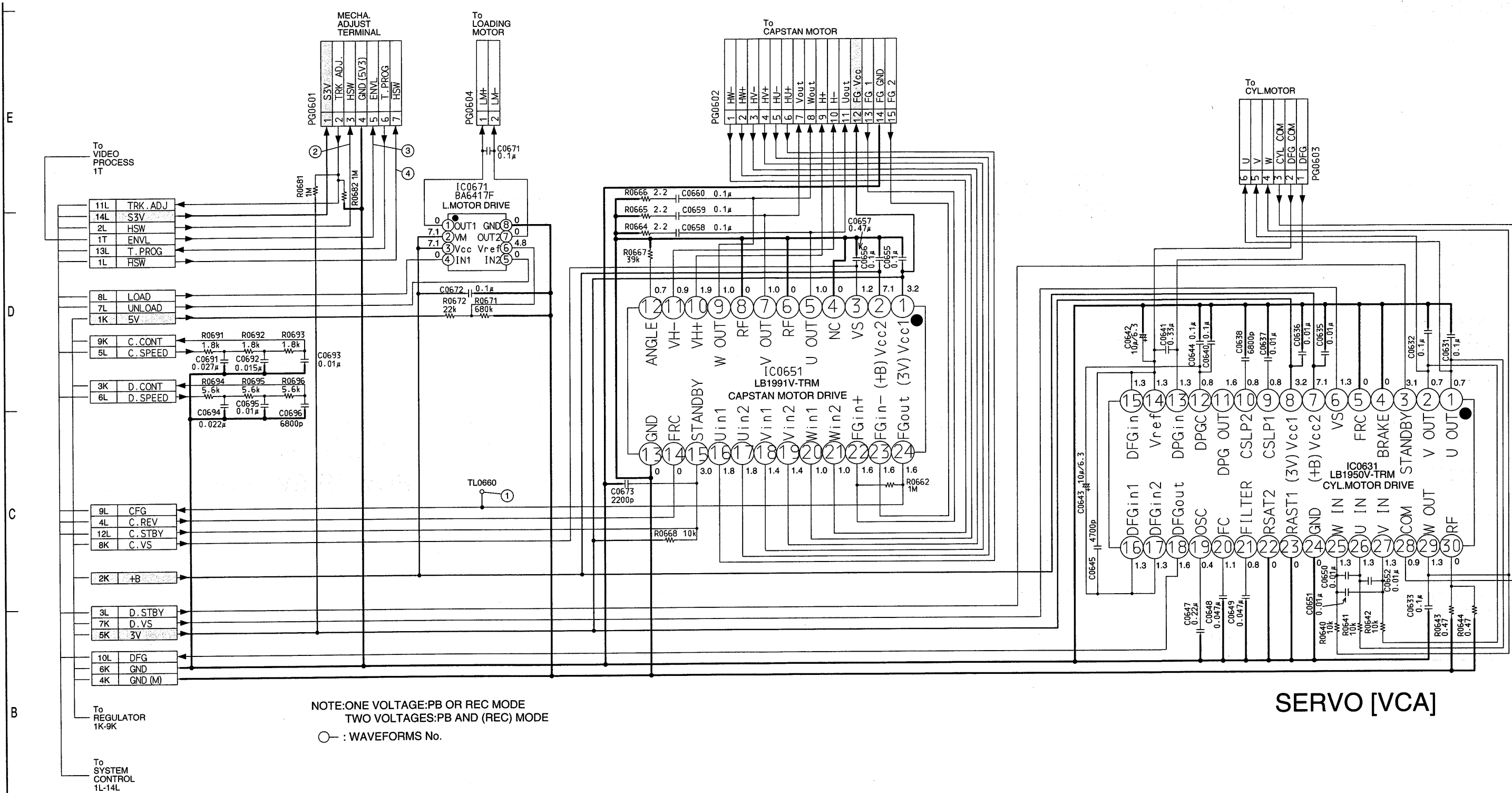
MECHA. STATE SWITCH/MECHA. SENSOR
SCHEMATIC DIAGRAMS



POWER SW [PSW] SCHEMATIC DIAGRAM

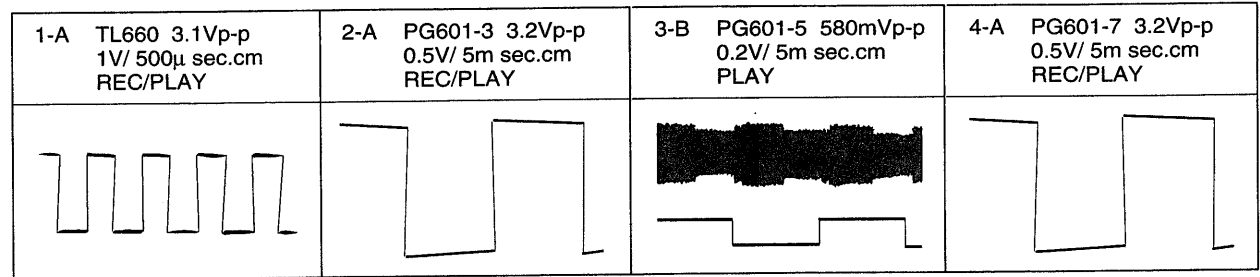


SERVO [VCA] SCHEMATIC DIAGRAM



SERVO [VCA]

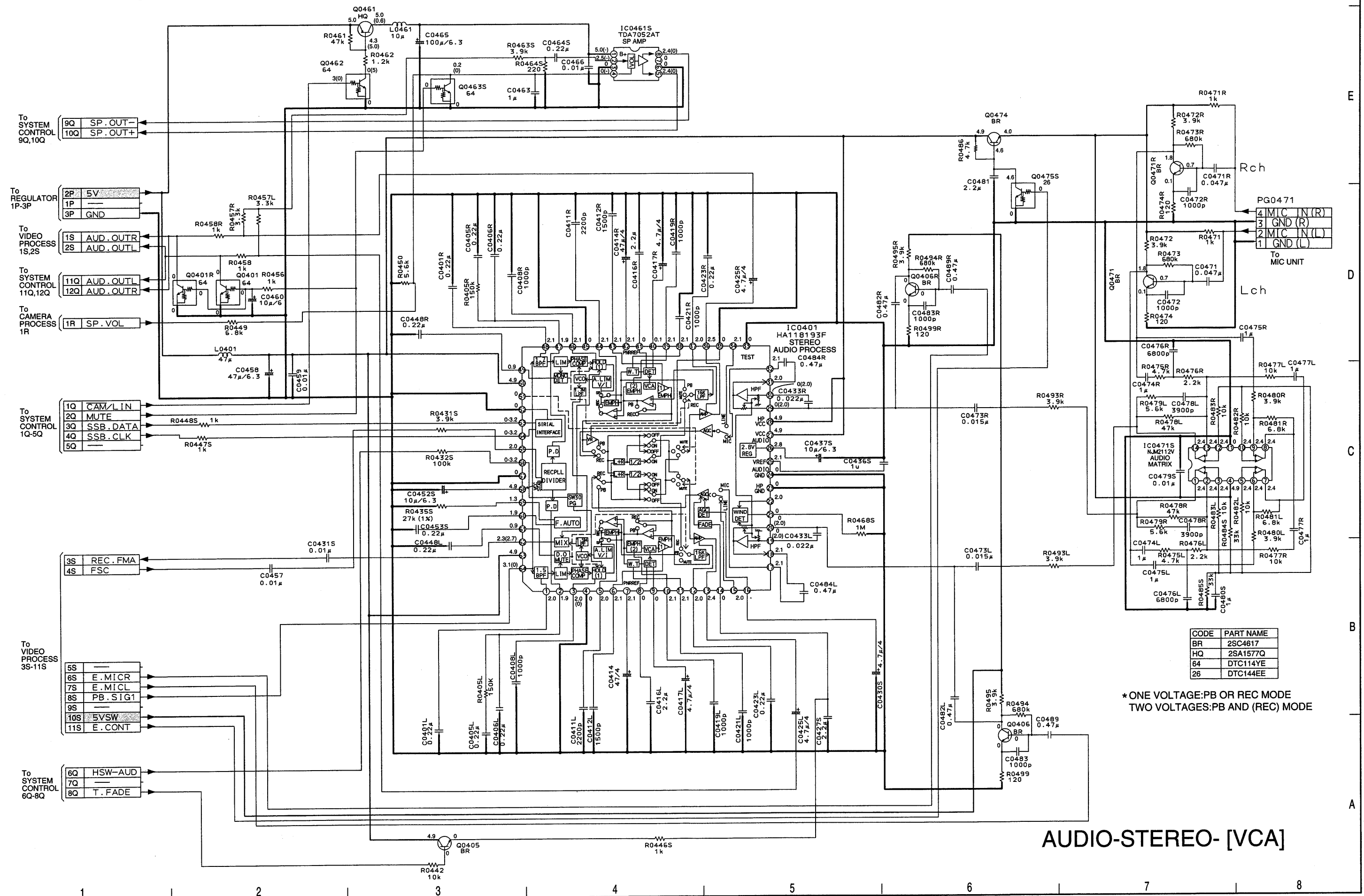
SERVO WAVEFORMS



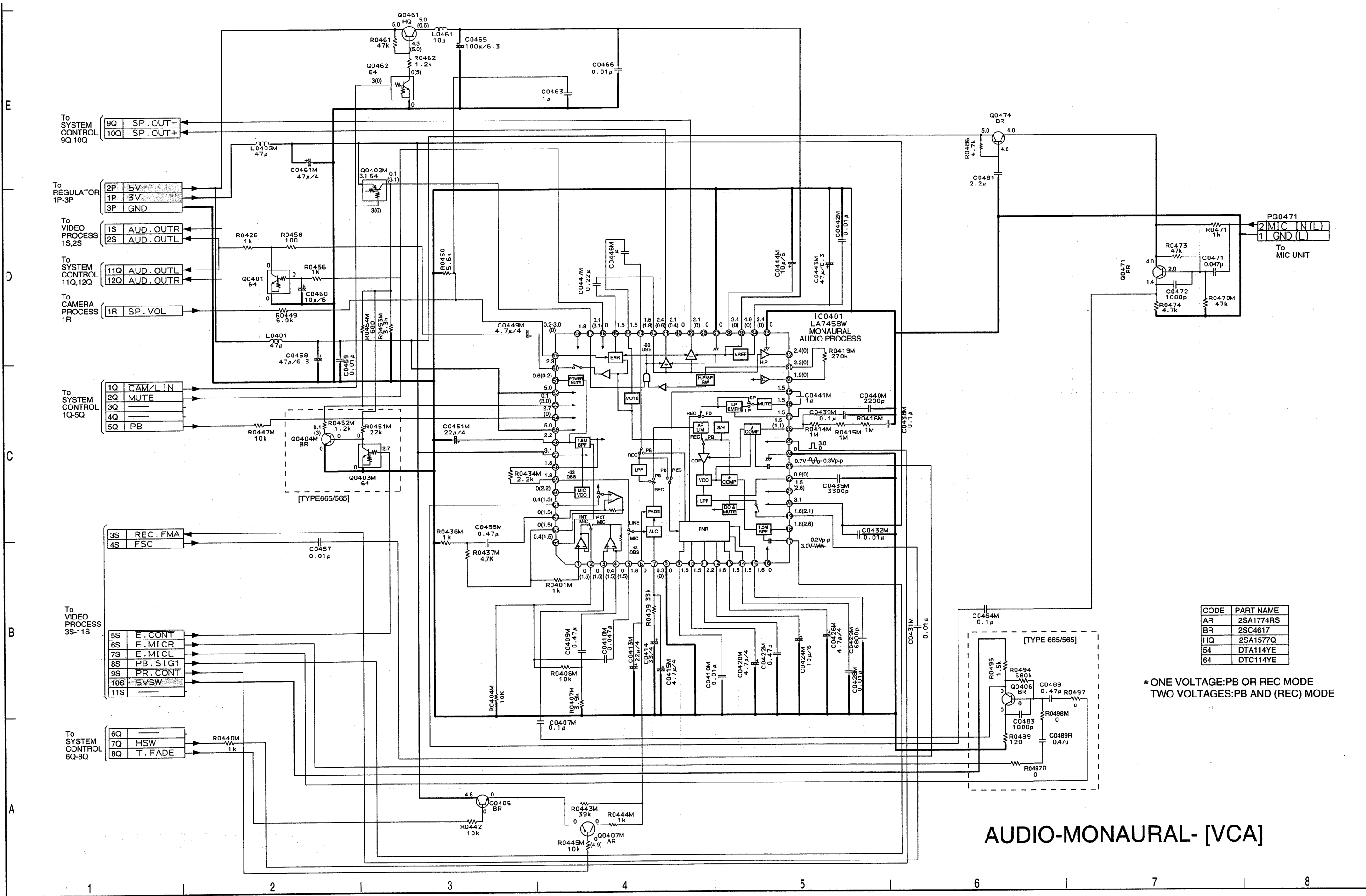
SERVO, WAVEFORMS 6 - 11

6 - 12 SERVO

AUDIO -STEREO- [VCA] SCHEMATIC DIAGRAM [TYPE 765]

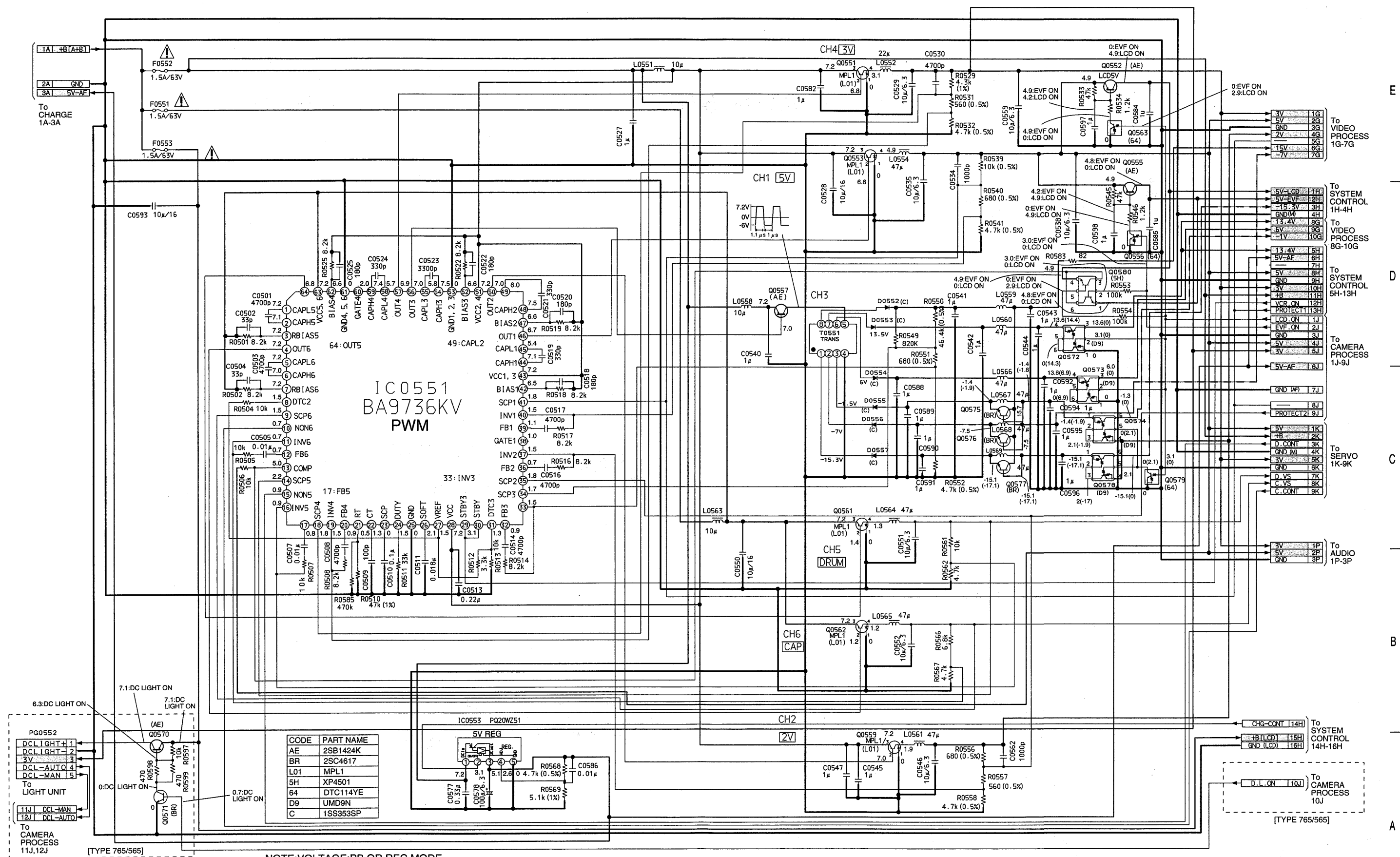


AUDIO -MONAURAL- [VCA] SCHEMATIC DIAGRAM [TYPE 665/565/563]



AUDIO-MONAURAL- [VCA]

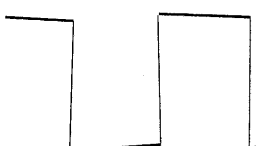
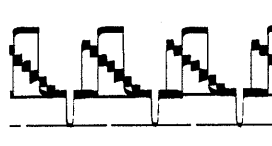
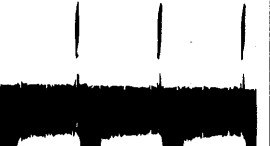
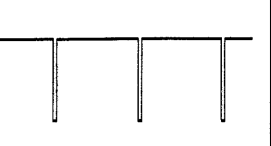
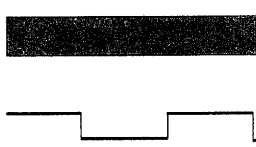
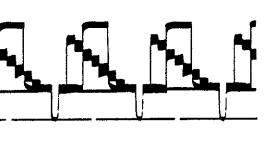
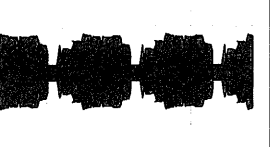
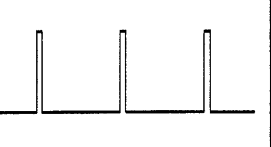
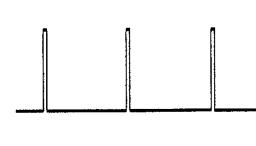
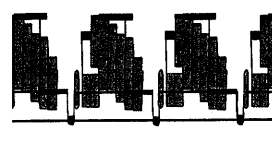
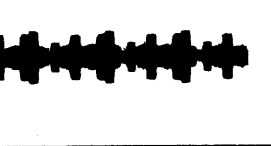
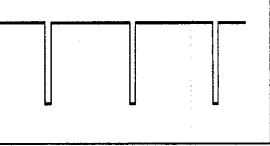
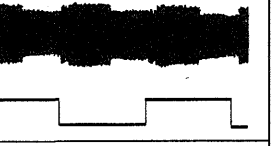
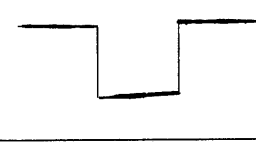
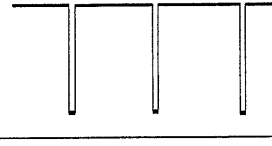
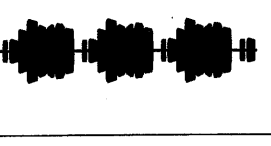
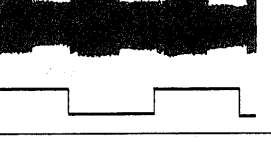
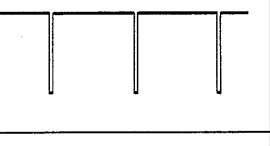
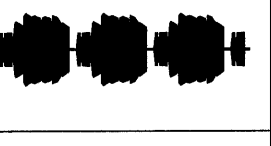
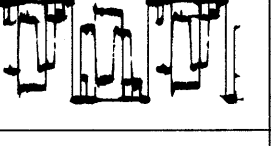
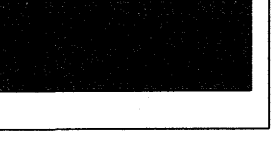
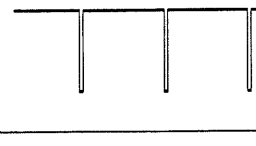
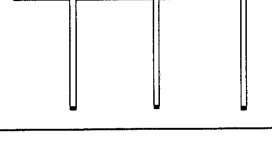
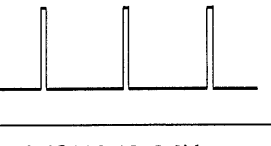
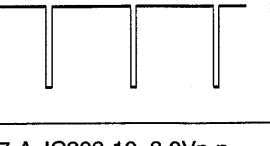
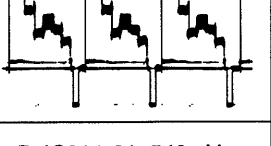
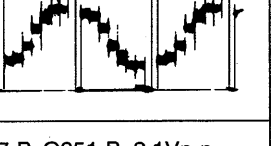
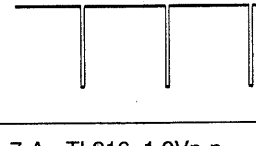
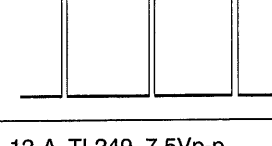
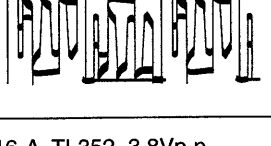
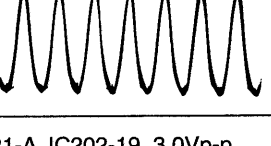
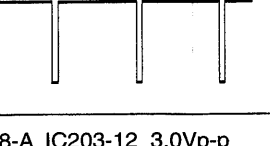
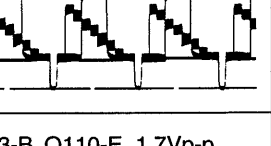
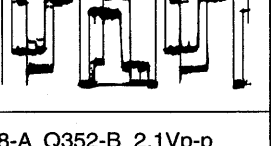
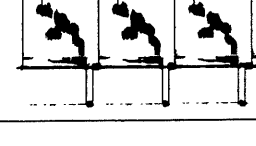
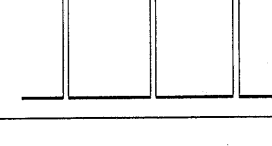
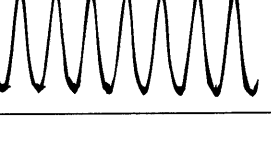
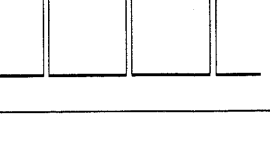
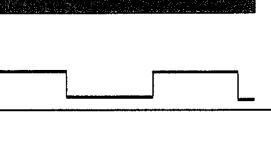
REGULATOR [VCA] SCHEMATIC DIAGRAM



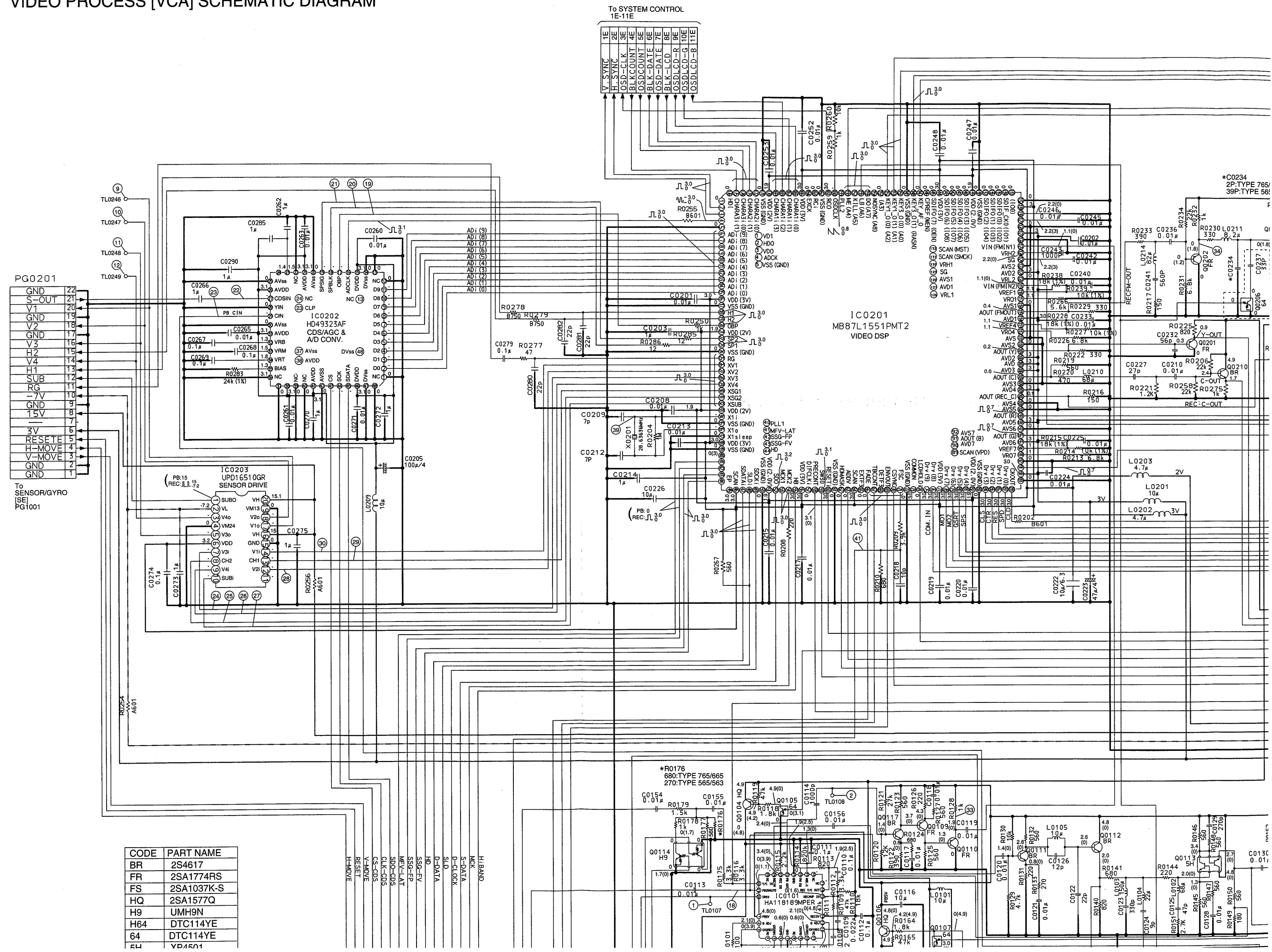
NOTE: VOLTAGE: PB OR REC MODE

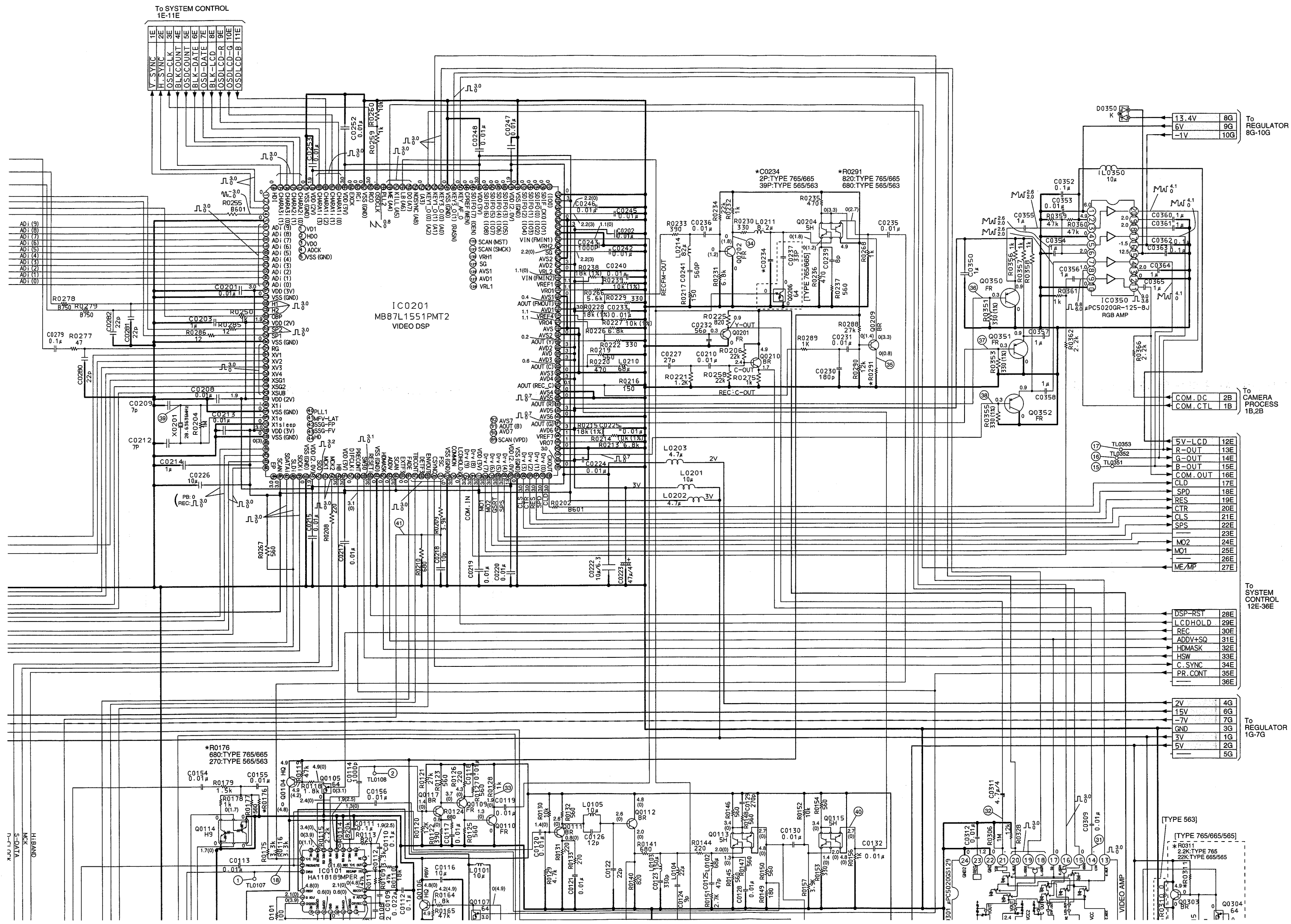
REGULATOR [VCA]

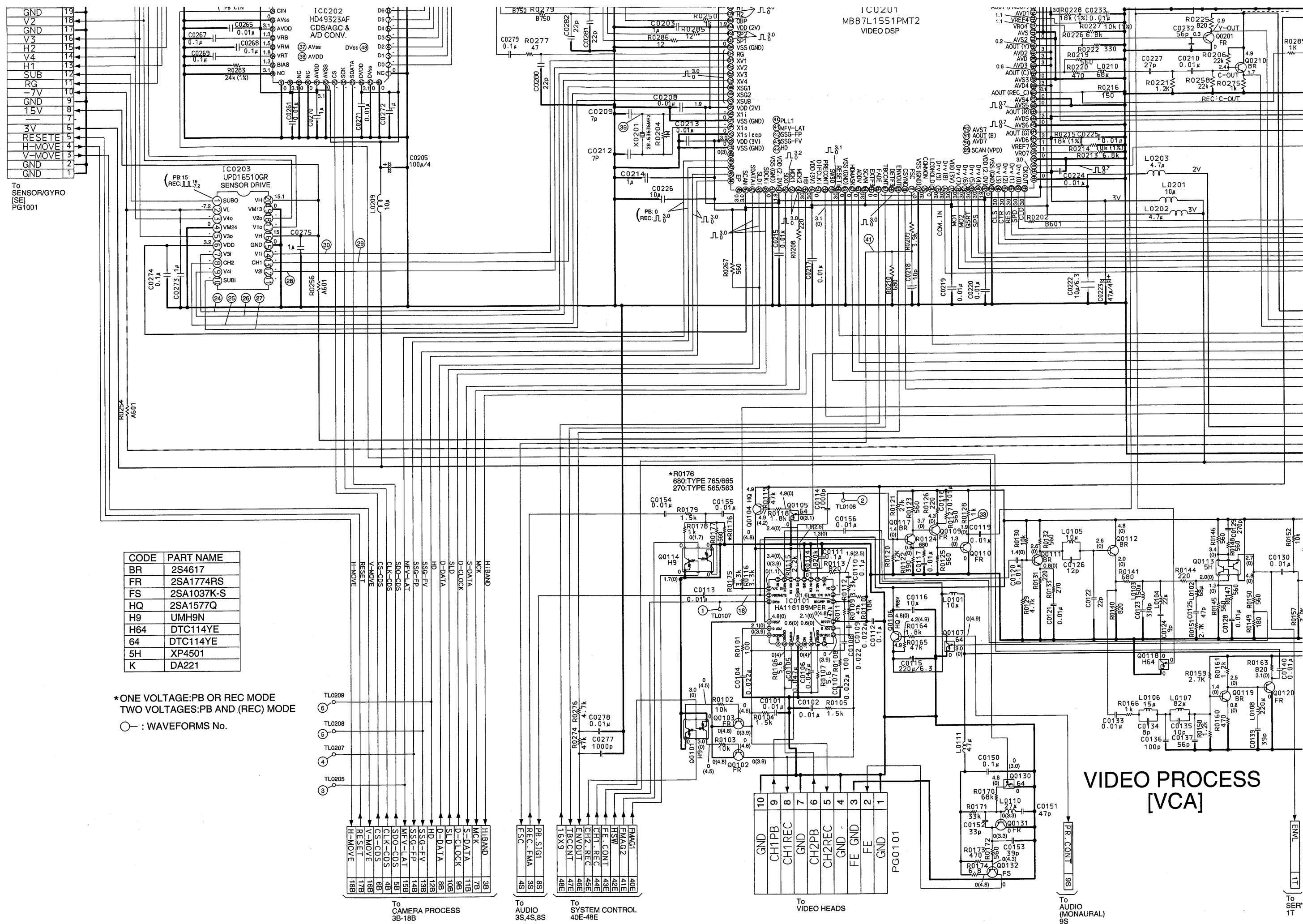
VIDEO PROCESS WAVEFORMS

1-A TL107 3.2Vp-p 0.5V/ 5m sec.cm REC/PLAY	7-B TL216 1.1Vp-p 0.2V/ 20μ sec.cm PLAY	13-A TL265 1.8Vp-p 0.5V/ 20μ sec.cm REC	16-B TL352 4.0Vp-p 1V/ 20μ sec.cm PLAY	22-A IC202-27 1.1Vp-p 0.2V/ 20μ sec.cm REC	29-A IC203-13 3.0Vp-p 1V/ 5m sec.cm REC	34-A Q202-E 400mVp-p 0.1V/ 20μ sec.cm REC	38-B Q352-B 2.1Vp-p 0.5V/ 20μ sec.cm PLAY
							
2-B TL108 320mVp-p 0.2V/ 5m sec.cm PLAY	8-A TL232 1.2Vp-p 0.2V/ 20μ sec.cm REC	13-B TL265 1.9Vp-p 0.5V/ 20μ sec.cm PLAY	17-A TL353 3.8Vp-p 1V/ 20μ sec.cm REC	23-B IC202-29 400mVp-p 0.2V/ 20μ sec.cm PLAY	30-A IC203-14 3.0Vp-p 1V/ 20μ sec.cm REC	35-A Q209-E 150mVp-p 50mV/ 20μ sec.cm REC	39-A C209 240mVp-p 50mV/ 20μ sec.cm REC/PLAY
							
3-A TL205 3.0Vp-p 1V/ 5m sec.cm REC	8-B TL232 1.0 Vp-p 0.2V/ 20μ sec.cm PLAY	14-A TL280 1.1Vp-p 0.5V/ 20μ sec.cm REC	17-B TL353 4.0Vp-p 1V/ 20μ sec.cm PLAY	24-A IC203-7 3.0Vp-p 1V/ 20μ sec.cm REC	31-A IC301-14 270mVp-p 0.1V/ 20μ sec.cm REC	36-A Q350-B 2.1Vp-p 0.5V/ 20μ sec.cm REC	40-B R156 1.5Vp-p 0.5V/ 5m sec.cm PLAY
							
4-A TL207 3.1Vp-p 1V/ 5m sec.cm REC	9-A TL246 7.5Vp-p 2V/ 20μ sec.cm REC	14-B TL280 1.3Vp-p 0.5V/ 20μ sec.cm PLAY	18-B IC101-27 200mVp-p 0.1 V/ 5m sec.cm PLAY	25-A IC203-8 3.0 Vp-p 1V/ 5m sec.cm REC	31-B IC301-14 310mVp-p 0.1V/ 20μ sec.cm PLAY	36-B Q350-B 2.1Vp-p 0.5V/ 20μ sec.cm PLAY	41-A R210 430mVp-p 0.1V/ 20μ sec.cm REC/PLAY
							
5-A TL208 3.0Vp-p 1V/ 5m sec.cm REC	10-A TL247 7.5Vp-p 2V/ 20μ sec.cm REC	15-A TL351 3.8Vp-p 1V/ 20μ sec.cm REC	19-A IC202-17 3.0Vp-p 1V/ 20μ sec.cm REC	26-A IC203-9 3.0Vp-p 1V/ 20μ sec.cm REC	32-A IC301-21 520mVp-p 0.1V/ 20μ sec.cm REC	37-A Q351-B 2.1Vp-p 0.5V/ 20μ sec.cm REC	
							
6-A TL209 3.0Vp-p 1V/ 20μ sec.cm REC	11-A TL248 7.5Vp-p 2V/ 20μ sec.cm REC	15-B TL351 4.0Vp-p 1V/ 20μ sec.cm PLAY	20-A IC202-18 3.0Vp-p 1V/ 50n sec.cm REC	27-A IC203-10 3.0Vp-p 1V/ 20μ sec.cm REC	32-B IC301-21 540mVp-p 0.1V/ 20μ sec.cm PLAY	37-B Q351-B 2.1Vp-p 0.5V/ 20μ sec.cm PLAY	
							
7-A TL216 1.0Vp-p 0.2V/ 20μ sec.cm REC	12-A TL249 7.5Vp-p 2V/ 20μ sec.cm REC	16-A TL352 3.8Vp-p 1V/ 20μ sec.cm REC	21-A IC202-19 3.0Vp-p 1V/ 50n sec.cm REC	28-A IC203-12 3.0Vp-p 1V/ 20μ sec.cm REC	33-B Q110-E 1.7Vp-p 1V/ 5m sec.cm PLAY	38-A Q352-B 2.1Vp-p 0.5V/ 20μ sec.cm REC	
							

VIDEO PROCESS [VCA] SCHEMATIC DIAGRAM

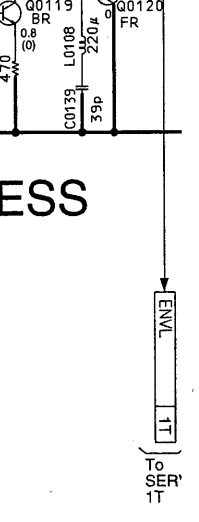
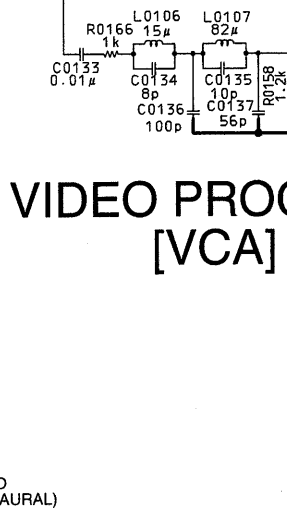
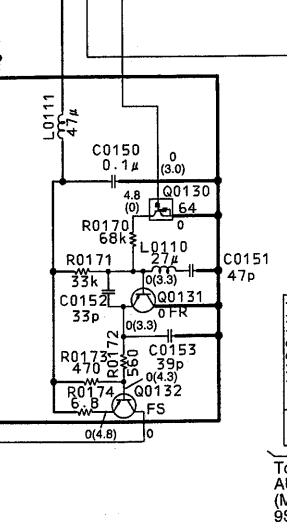
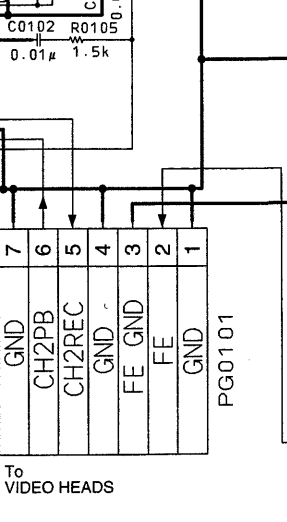
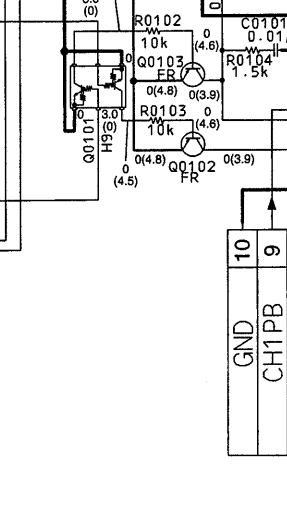
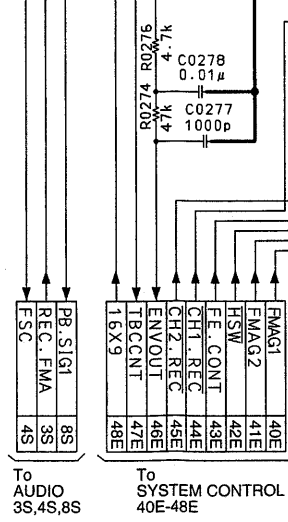
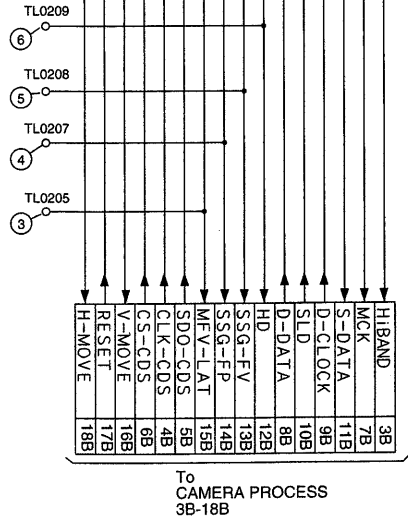




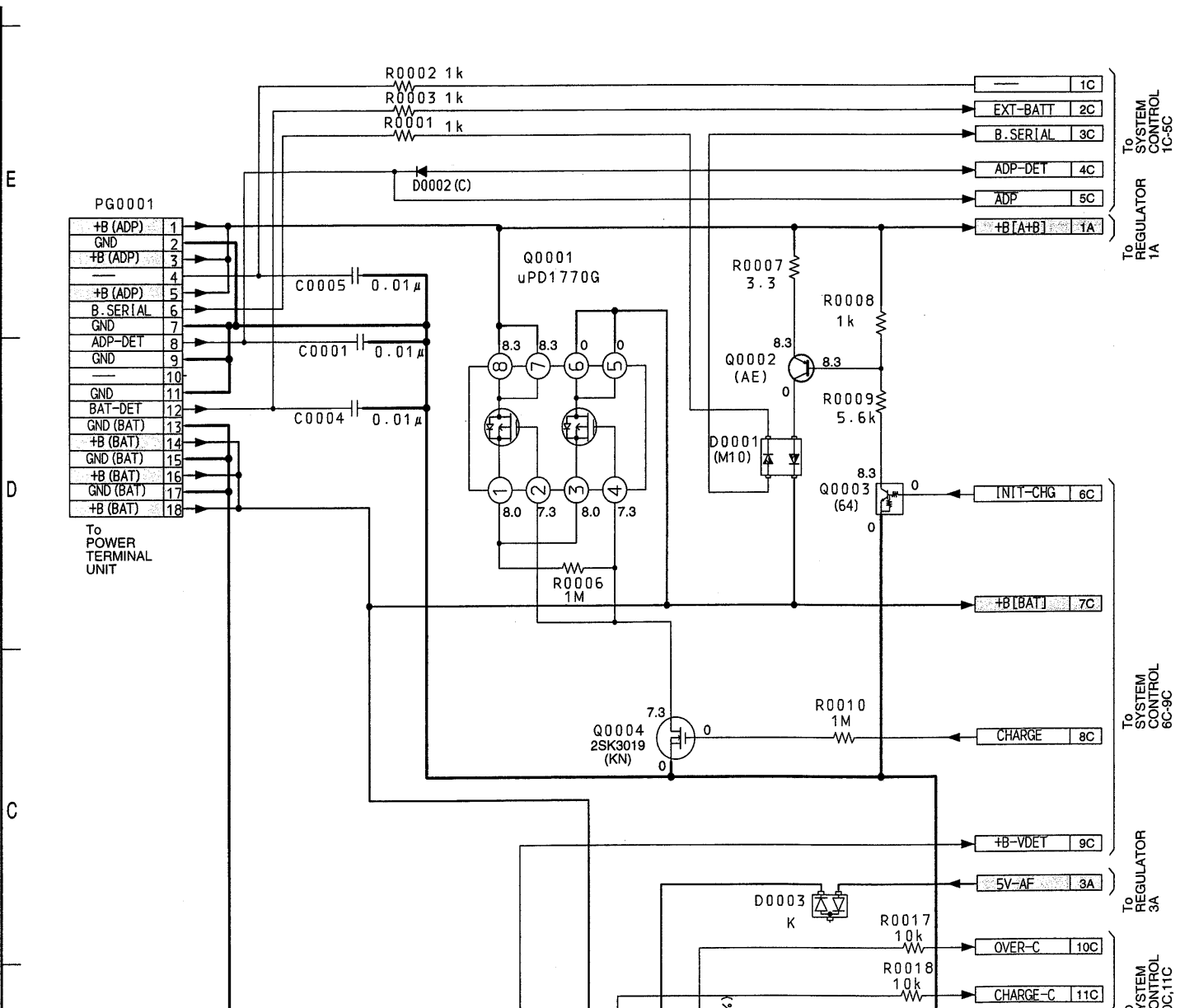


CODE	PART NAME
BR	2S4617
FR	2SA1774RS
FS	2SA1037K-S
HQ	2SA1577Q
H9	UMH9N
H64	DTC114YE
64	DTC114YE
5H	XP4501
K	DA221

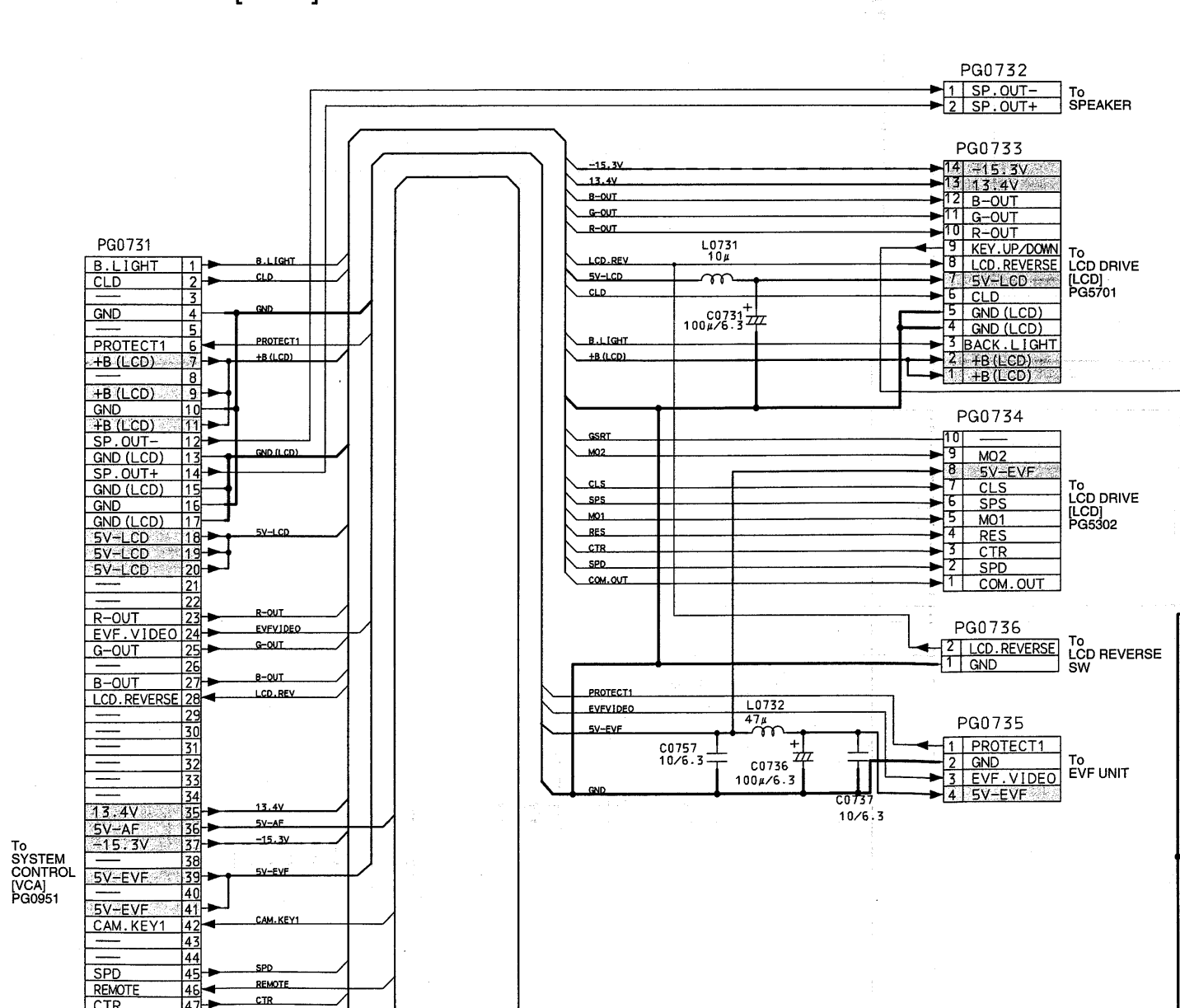
*ONE VOLTAGE:PB OR REC MODE
TWO VOLTAGES:PB AND (REC) MODE
○ : WAVEFORMS No.



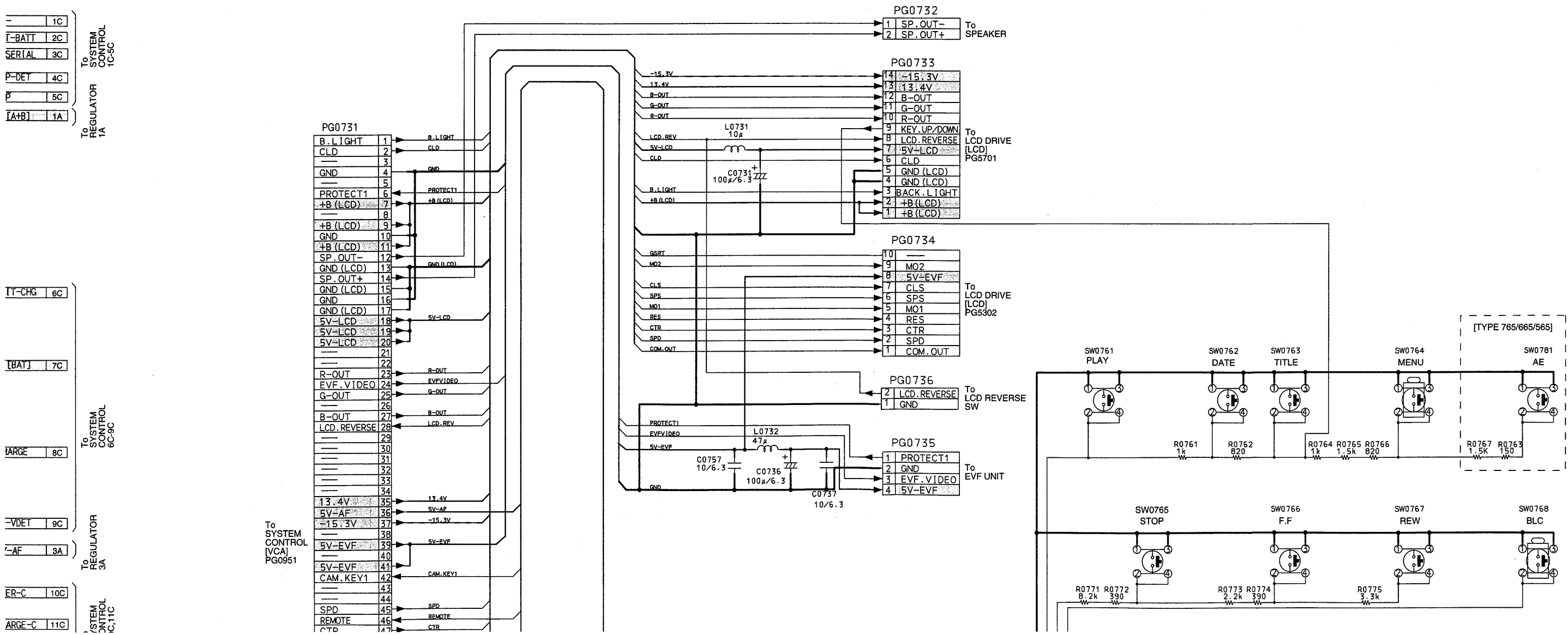
CHARGE [VCA] SCHEMATIC DIAGRAM



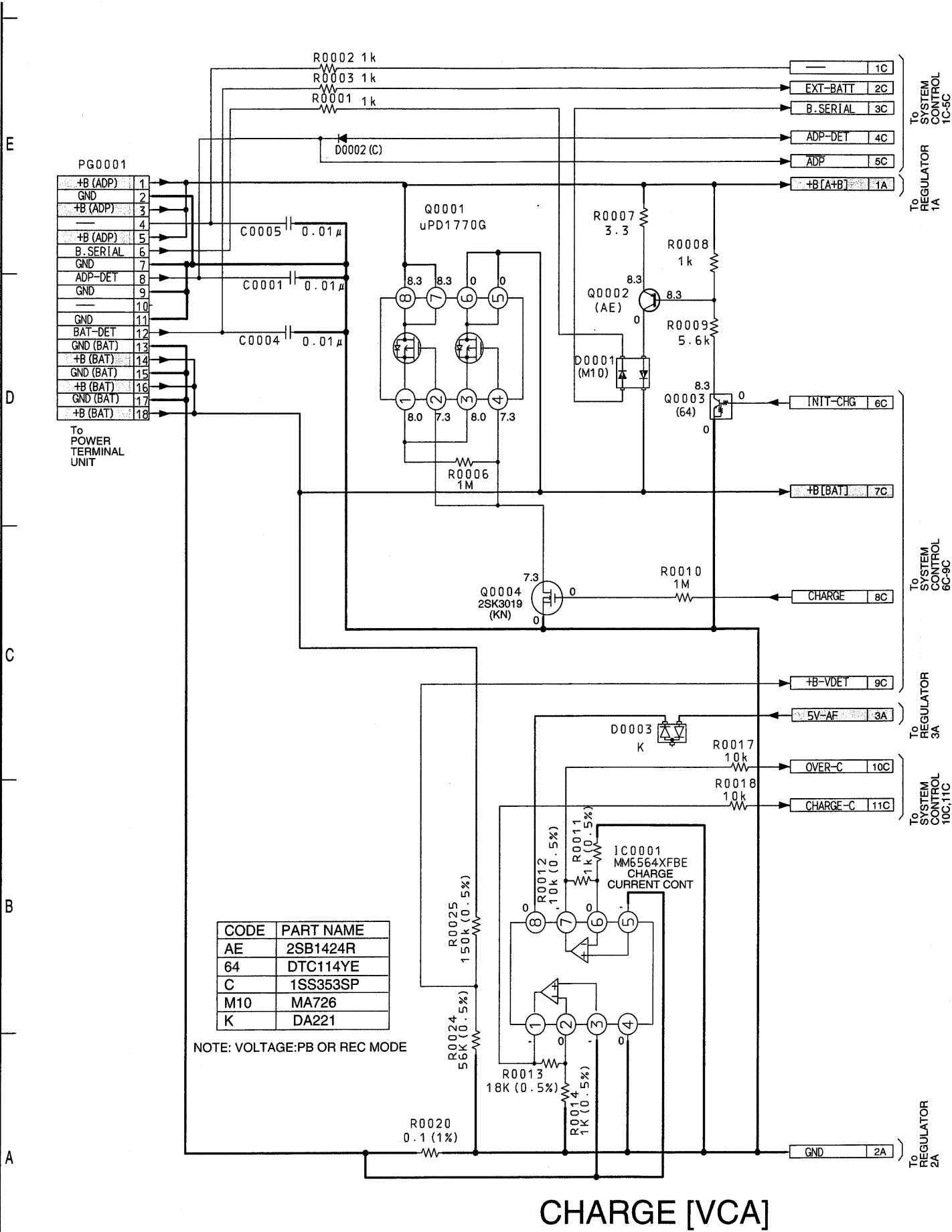
CONTROL [CON] SCHEMATIC DIAGRAM



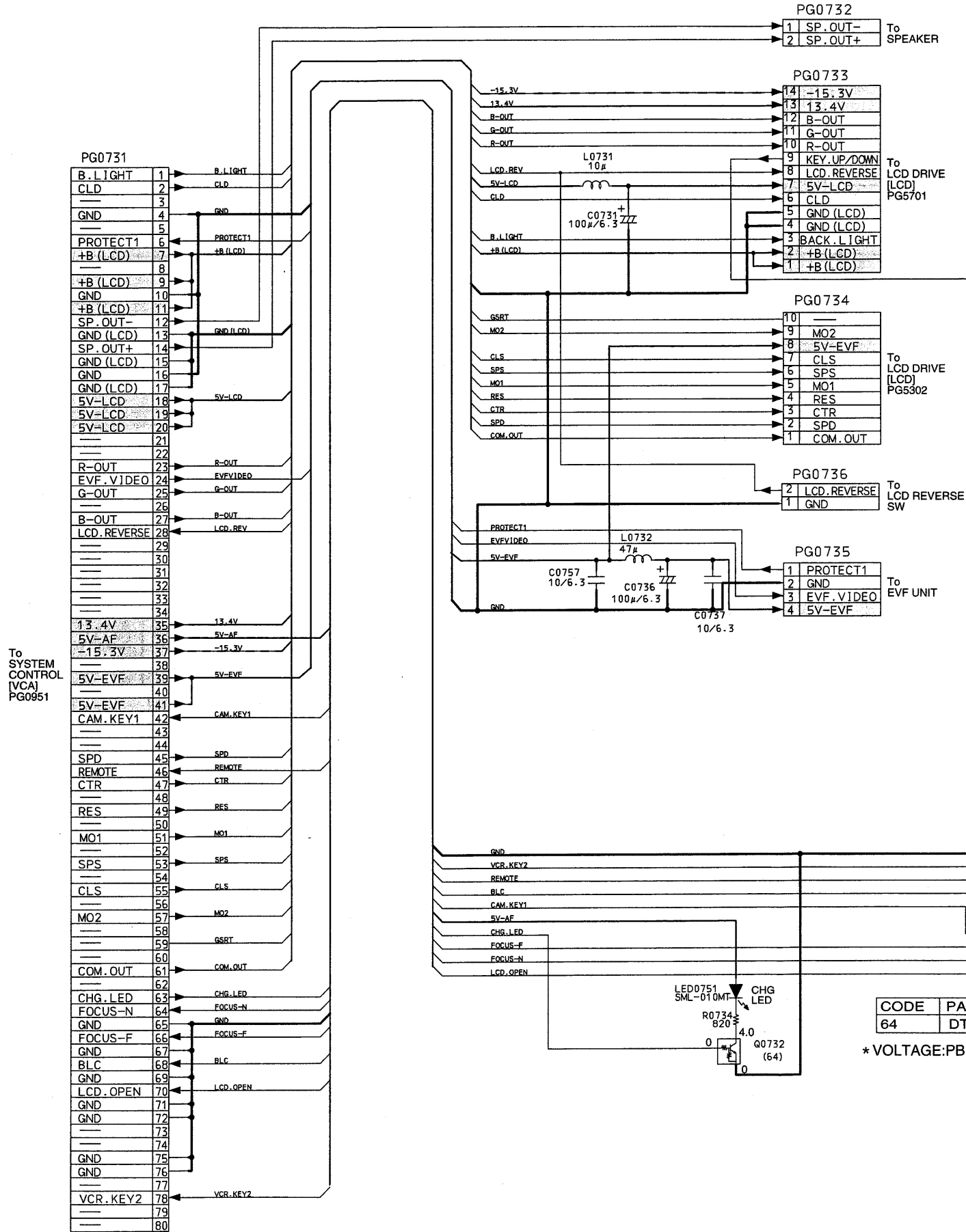
CONTROL [CON] SCHEMATIC DIAGRAM



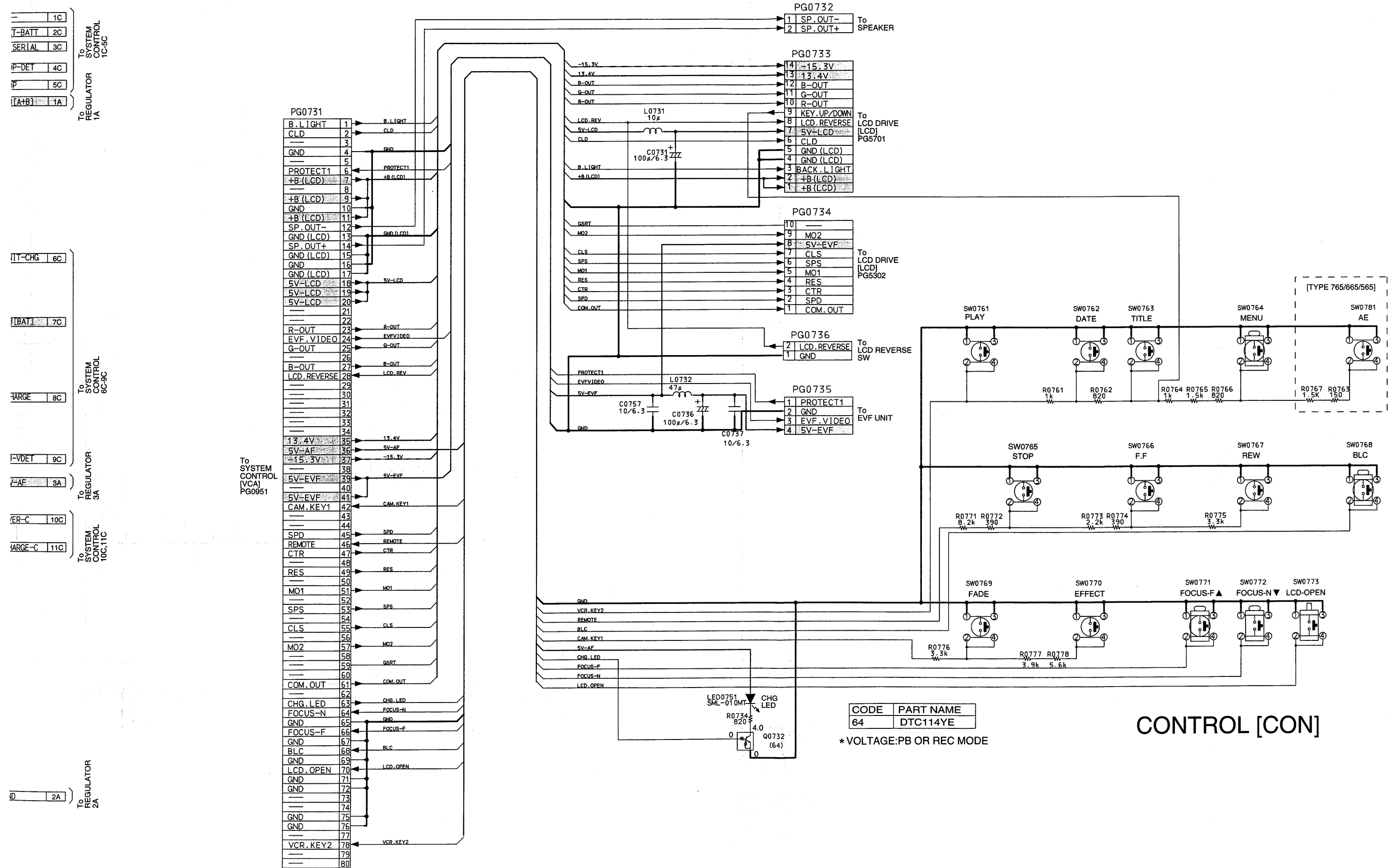
CHARGE [VCA] SCHEMATIC DIAGRAM



CONTROL [CON] SCHEMATIC DIAGRAM

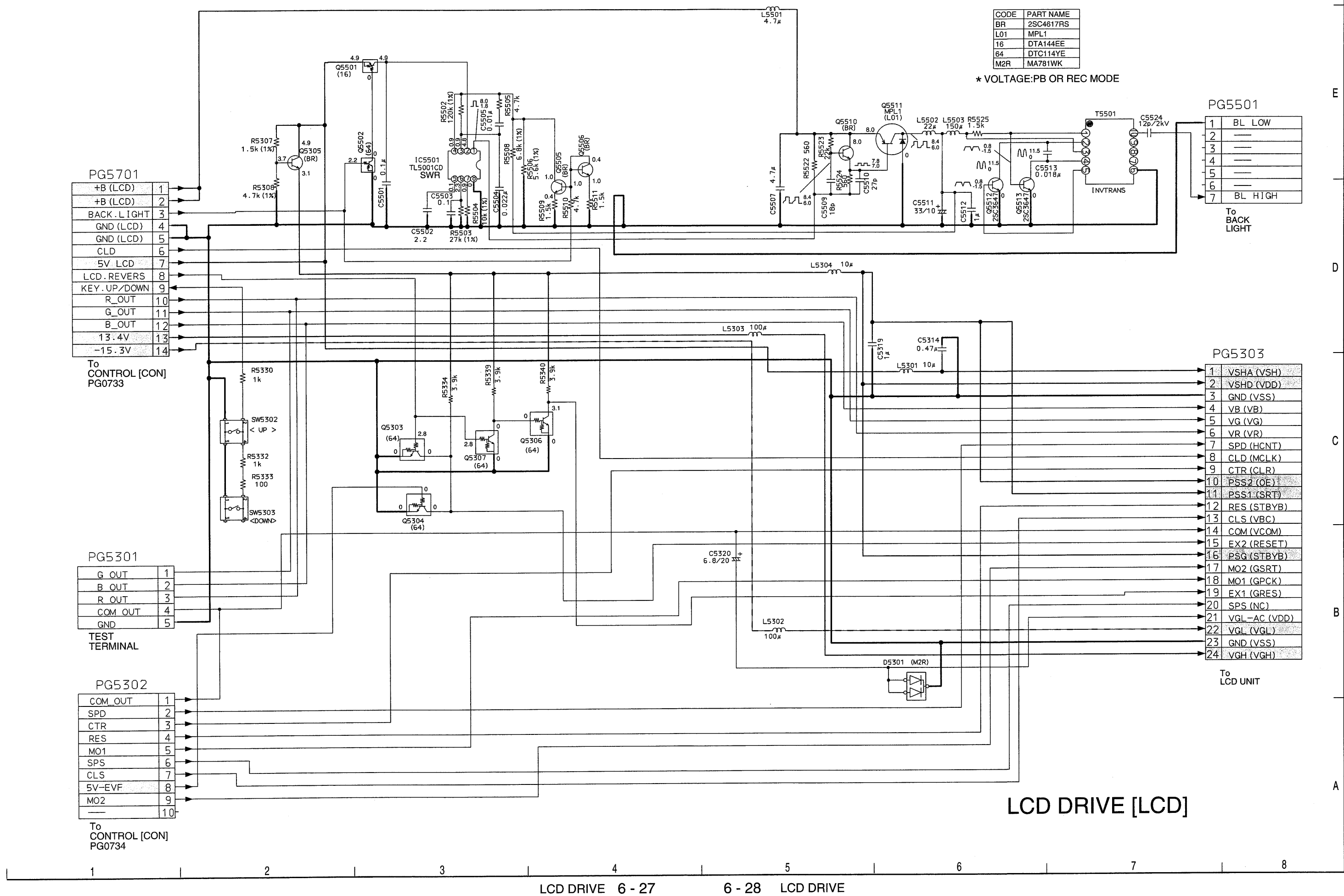


CONTROL [CON] SCHEMATIC DIAGRAM

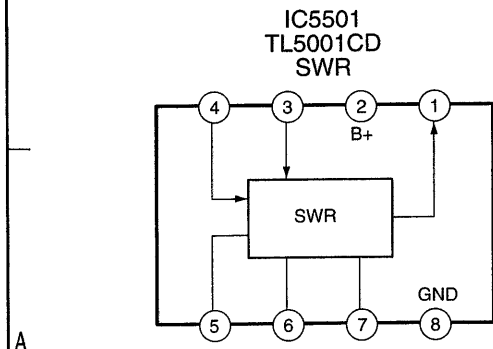
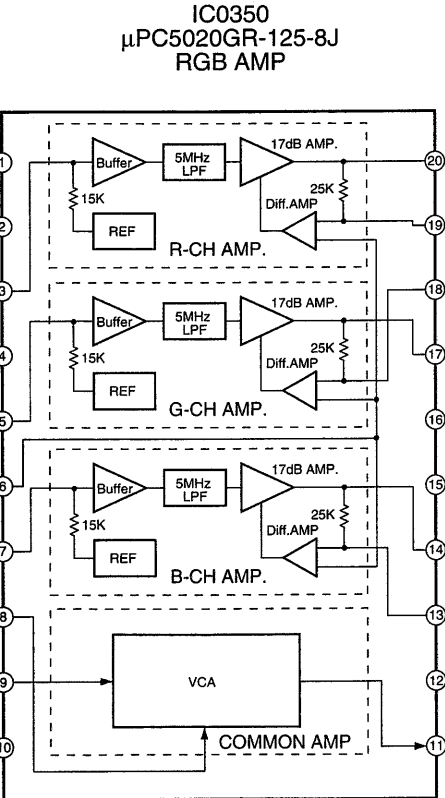
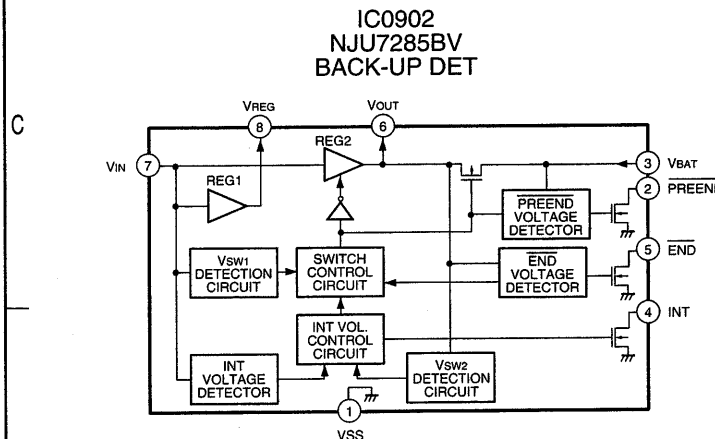
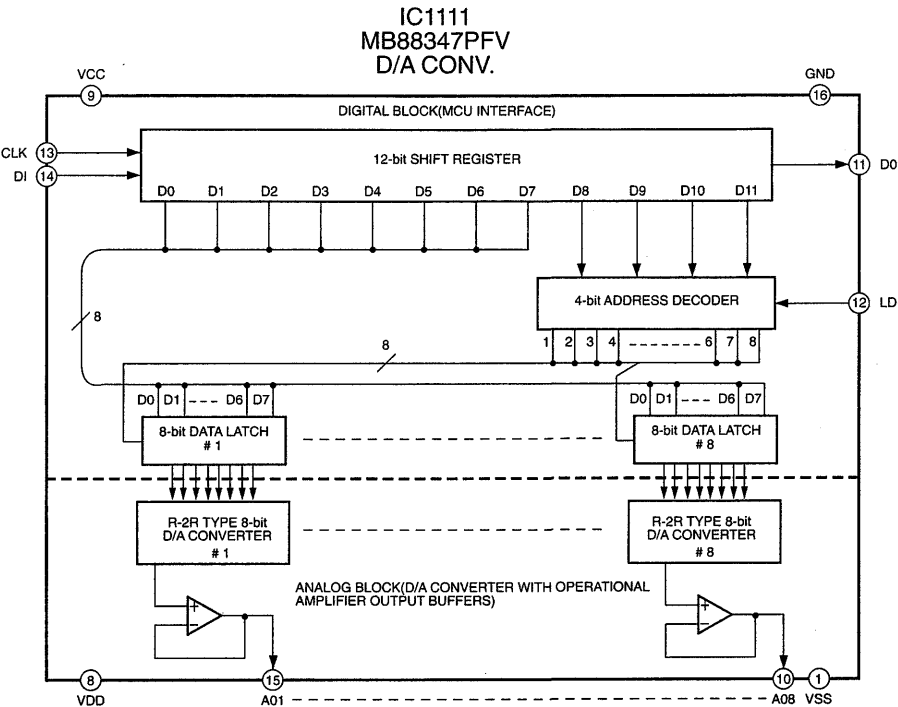
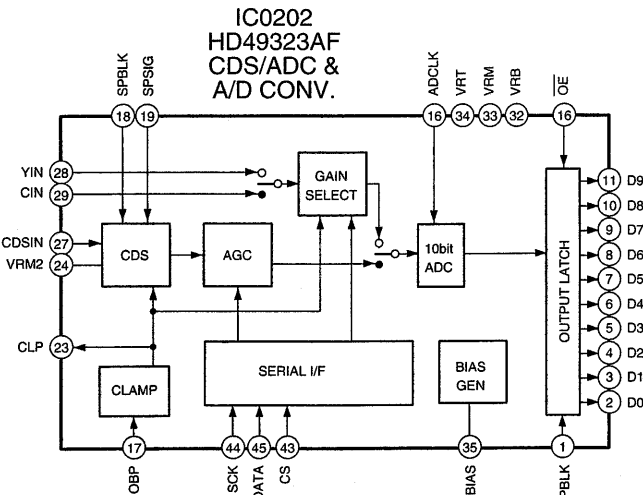
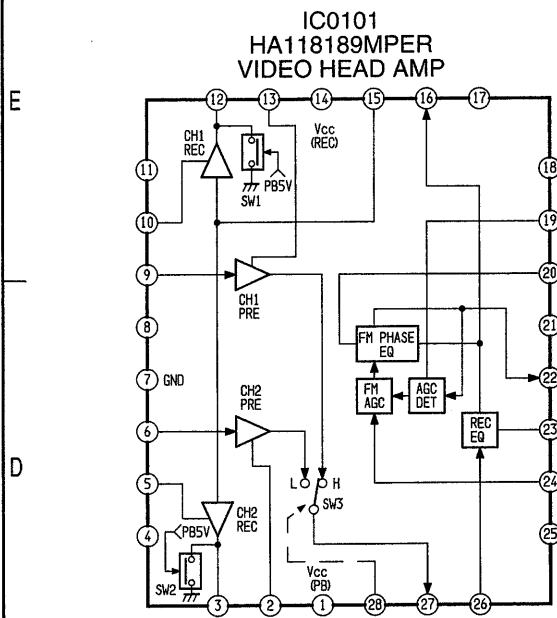


CONTROL [CON]

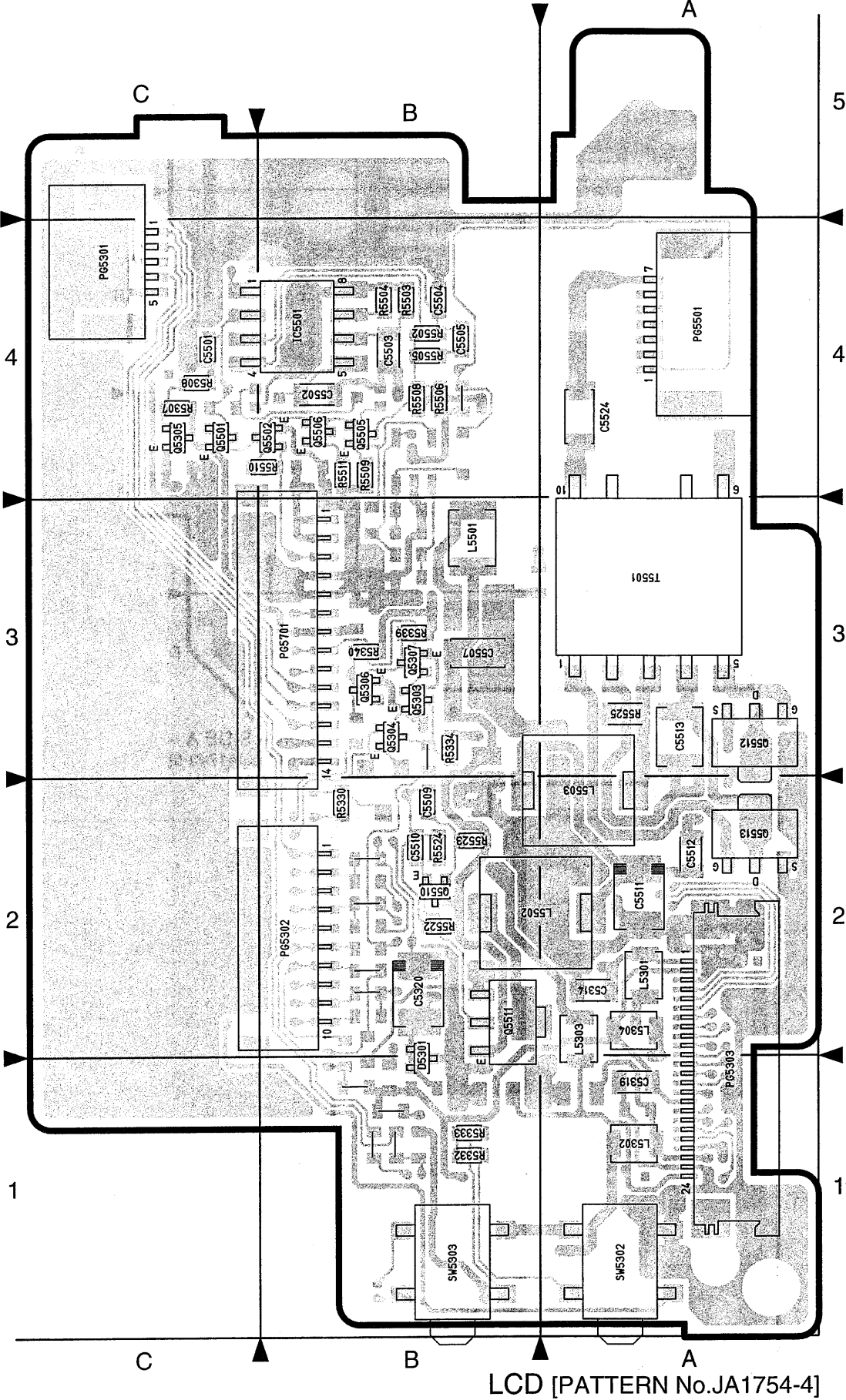
LCD DRIVE [LCD] SCHEMATIC DIAGRAM



IC BLOCK DIAGRAMS



LCD CIRCUIT BOARD DIAGRAM



DIFFERENCE TABLE

NOTE: This table lists the different components marked with asterisks (*) in the circuit board diagrams.

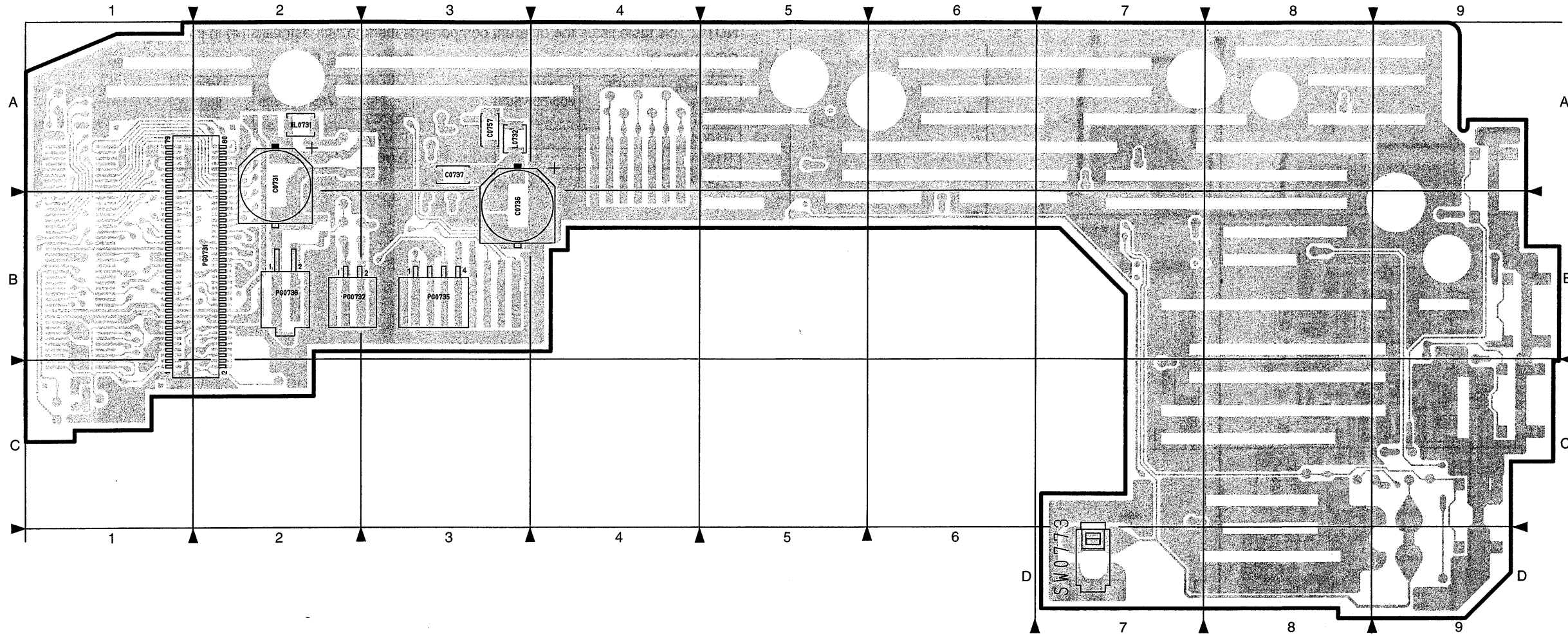
SE -SIDE B-

SYMBOL No.	TYPE 765	TYPE 665/565/563
C1007	×	○
R1004	○	×
R1005	○	×
R1006	×	○

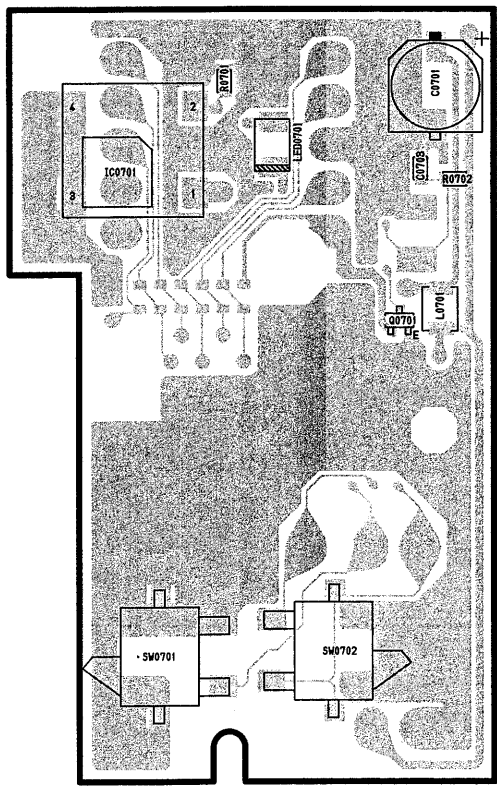
CON -SIDE B-

SYMBOL No.	TYPE 765/665/565	TYPE 563
R0763	○	×
R0767	○	×
SW0781	○	×

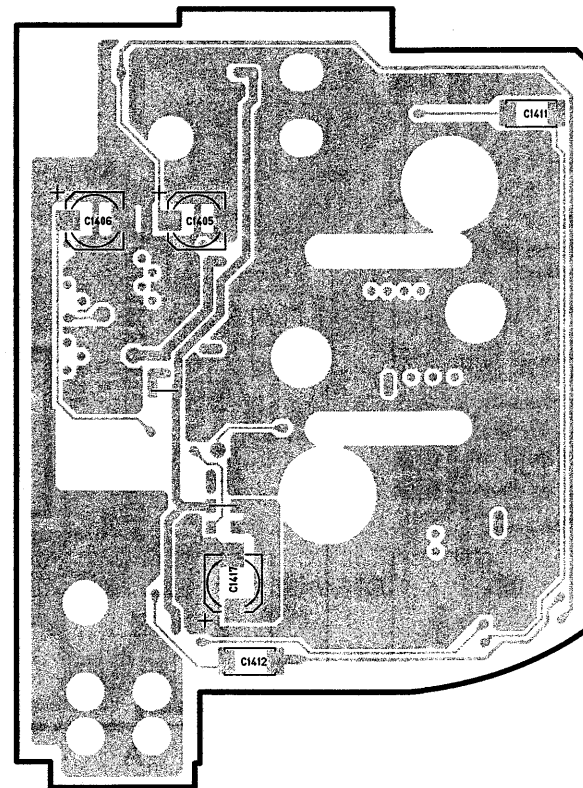
CON, SE, PSW CIRCUIT BOARD DIAGRAMS -SIDE A-



CON – SIDE A –
[PATTERN No.JA1743-5]

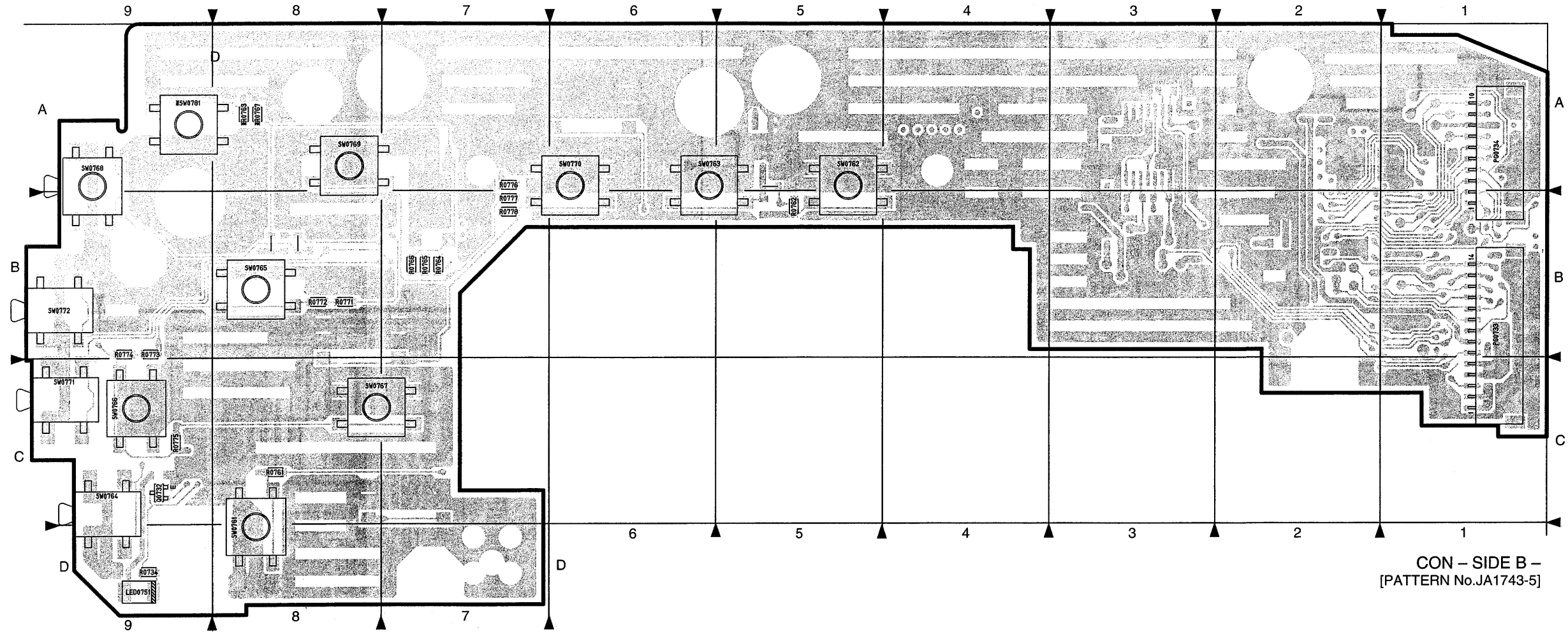


PSW – SIDE A –
[PATTERN No.JA1743-5]

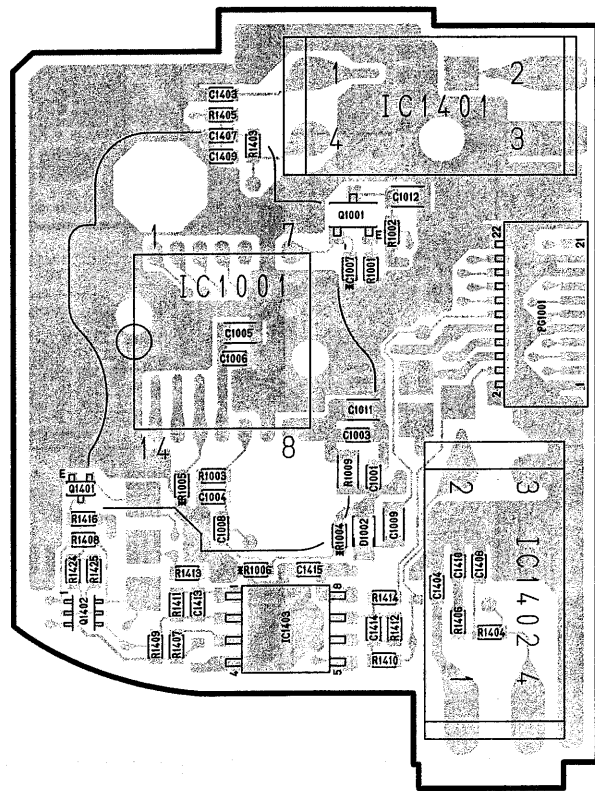


SE – SIDE A –
[PATTERN No.JA1743-5]

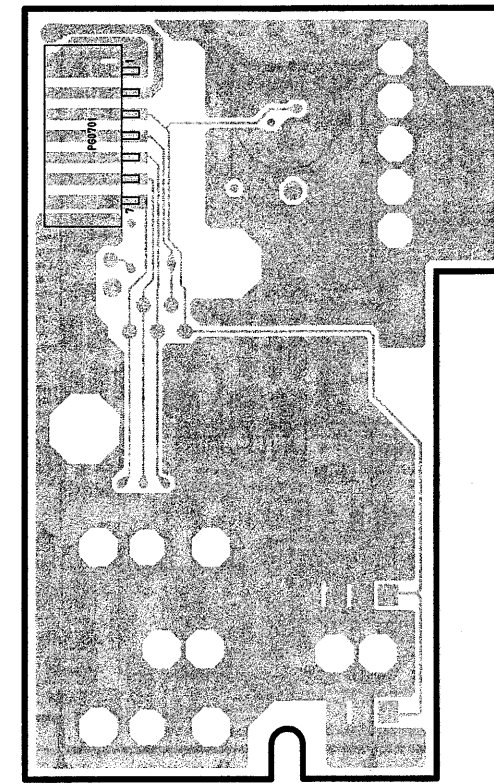
CON, SE, PSW CIRCUIT BOARD DIAGRAMS -SIDE B-



CON – SIDE B –
[PATTERN No.JA1743-5]



SE – SIDE B –
[PATTERN No.JA1743-5]



PSW – SIDE B –
[PATTERN No.JA1743-5]

VCA CIRCUIT BOARD DIAGRAM -SIDE A-

DIFFERENCE TABLE

NOTE: This table lists the different components marked with asterisks (*) in the circuit board diagrams.

VCA -SIDE A-

SYMBOL No.	TYPE 765	TYPE 665	TYPE 565	TYPE 563
C0302	○	○	×	×
C0401L	○	×	×	×
C0401R	○	×	×	×
C0414R	○	×	×	×
C0415M	×	○	○	○
C0416L	○	×	×	×
C0419L	○	×	×	×
C0420M	×	○	○	○
C0423R	○	×	×	×
C0425L	○	×	×	×
C0426M	×	○	○	○
C0432M	×	○	○	○
C0436S	○	×	×	×
C0443M	×	○	○	○
C0444M	×	○	○	○
C0451M	×	○	○	○
C0461M	×	○	○	○
C0473L	○	×	×	×
C0479S	○	×	×	×
IC0461S	○	×	×	×
PG0471	4P	2P	2P	2P
R0409	JUMPER	○	○	○
R0410M	×	JUMPER	JUMPER	JUMPER
R0412M	×	JUMPER	JUMPER	JUMPER
R0413S	JUMPER	×	×	×
R0420M	×	JUMPER	JUMPER	JUMPER
R0420S	JUMPER	×	×	×
R0421M	×	JUMPER	JUMPER	JUMPER
R0455M	×	JUMPER	JUMPER	JUMPER
R0487M	×	JUMPER	JUMPER	JUMPER
R0493L	○	×	×	×
R0493R	○	×	×	×
R1192	○	×	○	×
R1193	○	×	○	×

DIFFERENCE TABLE

NOTE: This table lists the different components marked with asterisks (*) in the circuit board diagrams.

VCA -SIDE B-

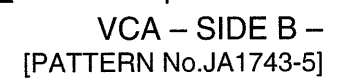
SYMBOL No.	TYPE 765	TYPE 665	TYPE 565	TYPE 563
C0237	○	○	×	×
C0301	○	○	×	×
C0306	○	○	×	×
C0315	○	○	○	×
C0405L	○	×	×	×
C0405R	○	×	×	×
C0406L	○	×	×	×
C0406R	○	×	×	×
C0407M	×	○	○	○
C0408L	○	×	×	×
C0408R	○	×	×	×
C0409M	×	○	○	○
C0410M	×	○	○	○
C0411L	○	×	×	×
C0411R	○	×	×	×
C0412L	○	×	×	×
C0412R	○	×	×	×
C0413M	×	○	○	○
C0416R	○	×	×	×
C0417L	○	×	×	×
C0417R	○	×	×	×
C0418M	×	○	○	○
C0419R	○	×	×	×
C0421L	○	×	×	×
C0421R	○	×	×	×
C0422M	×	○	○	○
C0423L	○	×	×	×
C0424M	×	○	○	○
C0425R	○	×	×	×
C0427S	○	×	×	×
C0428M	×	○	○	○
C0429M	×	○	○	○
C0430S	○	×	×	×
C0431M	×	○	○	○
C0431S	○	×	×	×
C0433L	○	×	×	×
C0433R	○	×	×	×
C0435M	×	○	○	○
C0437S	○	×	×	×
C0438M	×	○	○	○
C0439M	×	○	○	○
C0440M	×	○	○	○
C0441M	×	○	○	○
C0442M	×	○	○	○
C0446M	×	○	○	○
C0447M	×	○	○	○
C0448L	○	×	×	×
C0448R	○	×	×	×
C0449M	×	○	○	○
C0452S	○	×	×	×
C0453S	○	×	×	×

SYMBOL No.	TYPE 765	TYPE 665	TYPE 565	TYPE 563
C0454M	×	○	○	○
C0455M	×	○	○	○
C0464S	○	×	×	×
C0471R	○	×	×	×
C0472R	○	×	×	×
C0473R	○	×	×	×
C0474L	○	×	×	×
C0474R	○	×	×	×
C0475L	○	×	×	×
C0475R	○	×	×	×
C0476L	○	×	×	×
C0476R	○	×	×	×
C0477L	○	×	×	×
C0477R	○	×	×	×
C0478L	○	×	×	×
C0478R	○	×	×	×
C0480S	○	×	×	×
C0482L	○	×	×	×
C0482R	○	×	×	×
C0483	○	○	○	×
C0483R	○	×	×	×
C0484L	○	×	×	×
C0484R	○	×	×	×
C0489	○	○	○	×
C0489R	○	○	○	×
D1101	○	×	○	×
IC0471S	○	×	×	×
L0402M	×	○	○	○
PG0552	○	×	○	×
Q0206	○	○	×	×
Q0303	○	○	○	×
Q0304	○	○	○	×
Q0401R	○	×	×	×
Q0402M	×	○	○	○
Q0403M	×	○	○	○
Q0404M	×	○	○	○
Q0406	○	○	○	×
Q0406R	○	×	×	×
Q0407M	×	○	○	○
Q0463S	○	×	×	×
Q0471R	○	×	×	×
Q0475S	○	×	×	×
Q0570	○	×	○	×
Q0571	○	×	○	×
R0248	○	○	○	×
R0249	○	○	○	×
R0301	○	○	×	×
R0304	○	○	×	×
R0310	×	×	×	JUMPER
R0311	○	○	○	×
R0401M	×	○	○	○

SYMBOL No.	TYPE 765	TYPE 665	TYPE 565	TYPE 563
R0404M	×	○	○	○
R0405L	○	×	×	×
R0405R	○	×	×	×
R0406M	×	○	○	○
R0407M	×	○	○	○
R0408L	JUMPER	×	×	×
R0408R	JUMPER	×	×	×
R0411M	×	JUMPER	JUMPER	JUMPER
R0414M	×	○	○	○
R0415M	×	○	○	○
R0416M	×	○	○	○
R0417S	JUMPER	×	×	×
R0418S	JUMPER	×	×	×
R0419M	×	○	○	○
R0424M	×	JUMPER	JUMPER	JUMPER
R0425M	×	JUMPER	JUMPER	JUMPER
R0426	JUMPER	○	○	○
R0427S	JUMPER	×	×	×
R0429M	×	JUMPER	JUMPER	JUMPER
R0429S	JUMPER	×	×	×
R0430M	×	JUMPER	JUMPER	JUMPER
R0431S	○	×	×	×
R0432S	○	×	×	×
R0433M	×	JUMPER	JUMPER	JUMPER
R0433S	JUMPER	×	×	×
R0434M	×	○	○	○
R0435S	○	×	×	×
R0436M	×	○	○	○
R0437M	×	○	○	○
R0437S	JUMPER	×	×	×
R0438S	JUMPER	×	×	×
R0440M	×	○	○	○
R0441M	×	JUMPER	JUMPER	JUMPER
R0441S	JUMPER	×	×	×
R0443M	×	○	○	○
R0444M	×	○	○	○
R0445M	×	○	○	○
R0446S	○	×	×	×
R0447M	×	○	○	○
R0447S	○	×	×	×
R0448S	○	×	×	×
R0451M	×	○	○	○
R0452M	×	○	○	○
R0453M	×	○	○	○
R0454M	×	○	○	○
R0457L	○	×	×	×
R0457R	○	×	×	×
R0458R	○	×	×	×
R0463S	○	×	×	×
R0464S	○	×	×	×
R0465M	×	JUMPER	JUMPER	JUMPER

SYMBOL No.	TYPE 765	TYPE 665	TYPE 565	TYPE 563
R0466M	×	JUMPER	JUMPER	JUMPER
R0468S	○	×	×	×
R0470M	×	○	○	○
R0471R	○	×	×	×
R0472	○	JUMPER	JUMPER	JUMPER
R0472R	○	×	×	×
R0473R	○	×	×	×
R0474R	○	×	×	×
R0475L	○	×	×	×
R0475R	○	×	×	×
R0476L	○	×	×	×
R0476R	○	×	×	×
R0477L	○	×	×	×
R0477R	○	×	×	×
R0478L	○	×	×	×
R0478R	○	×	×	×
R0479L	○	×	×	×
R0479R	○	×	×	×
R0480L	○	×	×	×
R0480R	○	×	×	×
R0481L	○	×	×	×
R0481R	○	×	×	×
R0482L	○	×	×	×
R0482R	○	×	×	×
R0483L	○	×	×	×
R0483R	○	×	×	×
R0484S	○	×	×	×
R0485S	○	×	×	×
R0488L	JUMPER	×	×	×
R0488R	JUMPER	×	×	×
R0494	○	○	○	×
R0494R	○	×	×	×
R0495	○	○	○	×
R0495R	○	×	×	×
R0497	JUMPER	JUMPER	JUMPER	×
R0497R	JUMPER	JUMPER	JUMPER	×
R0498M	×	JUMPER	JUMPER	×
R0499	○	○	○	×
R0499R	○	×	×	×
R0597	○	×	○	×
R0598	○	×	○	×
R0599	○	×	○	×
R1123	○	×	○	×
R1124	○	×	○	×
R1125	○	×	○	×

6 - 44 VCA -SIDE B-



VCA

VCA 6 - 45

IDENTIFICATION OF PARTS LOCATION

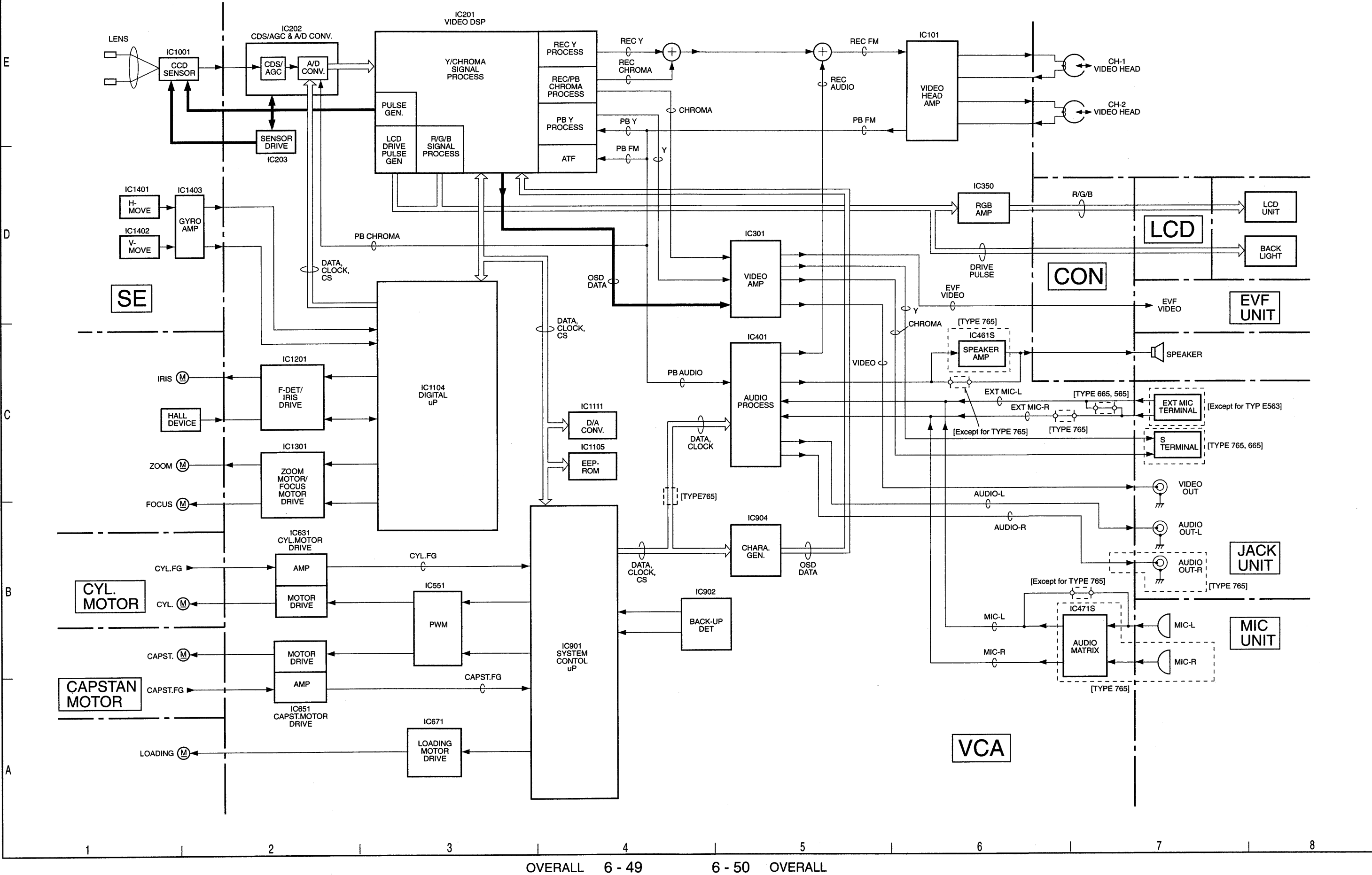
LCD

Symbol No.	Parts Location	Symbol No.	Parts Location
C		R5503	4B
C5314	2A	R5504	4B
C5319	1A	R5505	4B
C5320	2B	R5506	4B
C5501	4C	R5508	4B
C5502	4B	R5509	4B
C5503	4B	R5510	4B
C5504	4B	R5511	4B
C5505	4B	R5522	2B
C5507	3B	R5523	2B
C5509	2B	R5524	2B
C5510	2B	R5525	3A
C5511	2A	SW	
C5512	2A	SW5302	1A
C5513	3A	SW5303	1B
C5524	4A	T	
D		T5501	3A
D5301	1B		
IC			
IC5501	4B		
L			
L5301	2A		
L5302	1A		
L5303	2A		
L5304	2A		
L5501	3B		
L5502	2B		
L5503	2A		
PG			
PG5301	4C		
PG5302	2B		
PG5303	1A		
PG5501	4A		
PG5701	3B		
Q			
Q5303	3B		
Q5304	3B		
Q5305	4C		
Q5306	3B		
Q5307	3B		
Q5501	4C		
Q5502	4B		
Q5505	4B		
Q5506	4B		
Q5510	2B		
Q5511	2B		
Q5512	3A		
Q5513	2A		
R			
R5307	4C		
R5308	4C		
R5330	2B		
R5332	1B		
R5333	1B		
R5334	3B		
R5339	3B		
R5340	3B		
R5502	4B		

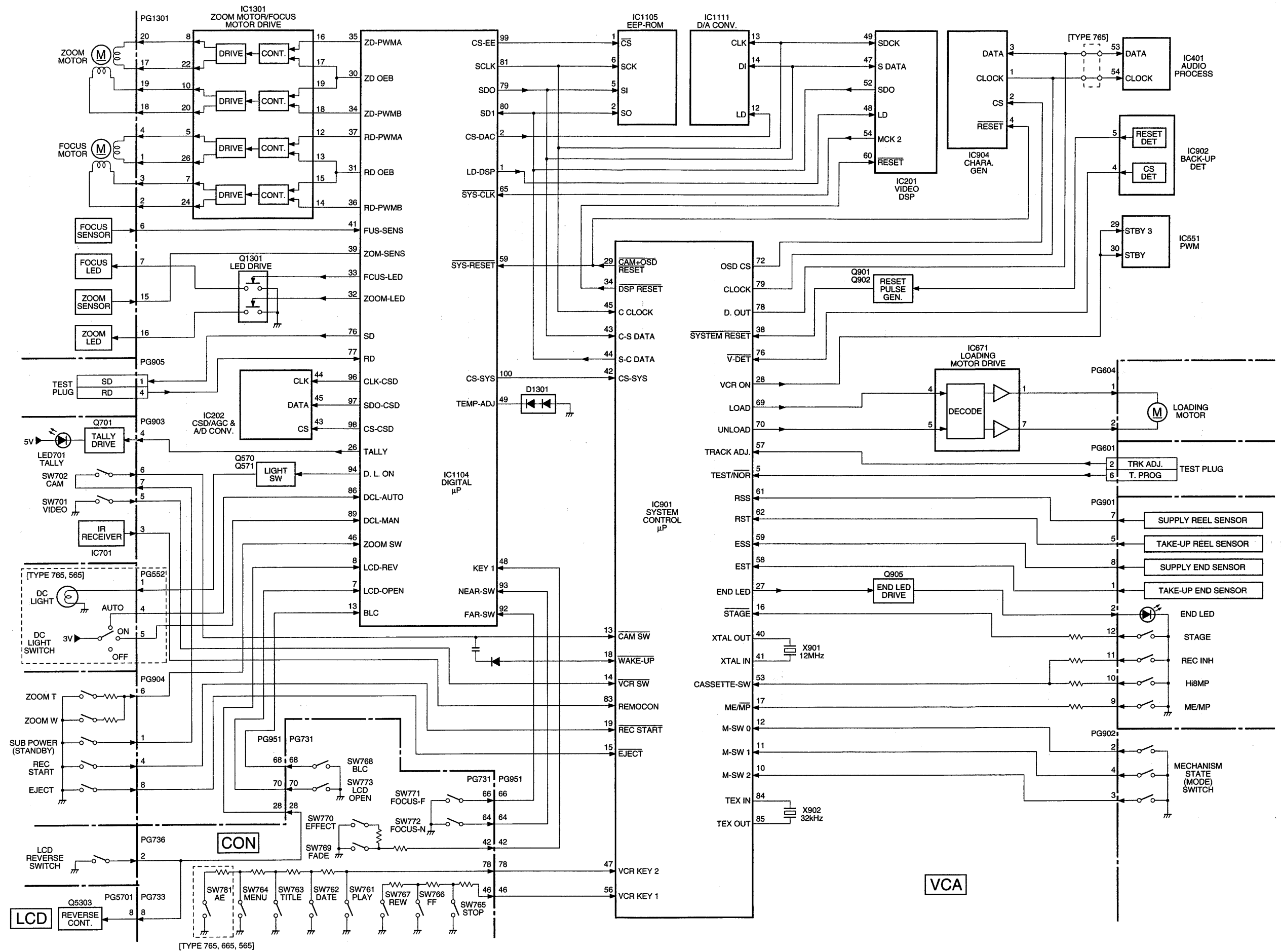
CON

Symbol No.	Parts Location
C	
C0731	A-2A
C0736	A-3B
C0737	A-3A
C0757	A-3A
L	
L0731	A-2A
L0732	A-3A
LED	
LED0751	B-9D
PG	
PG0731	A-2B
PG0732	A-2B
PG0733	B-1B
PG0734	B-1A
PG0735	A-3B
PG0736	A-2B
Q	
Q0732	B-9C
R	
R0734	B-9D
R0761	B-8C
R0762	B-5B
R0763	B-8A
R0764	B-7B
R0765	B-7B
R0766	B-7B
R0767	B-8A
R0771	B-8B
R0772	B-8B
R0773	B-9B
R0774	B-9B
R0775	B-9C
R0776	B-7A
R0777	B-7B
R0778	B-7B
SW	
SW0761	B-8D
SW0762	B-5A
SW0763	B-6A
SW0764	B-9C
SW0765	B-8B
SW0766	B-9C
SW0767	B-8C
SW0768	B-9A
SW0769	B-8A
SW0770	B-6A
SW0771	B-9C
SW0772	B-9B
SW0773	A-7D
SW0781	B-9A

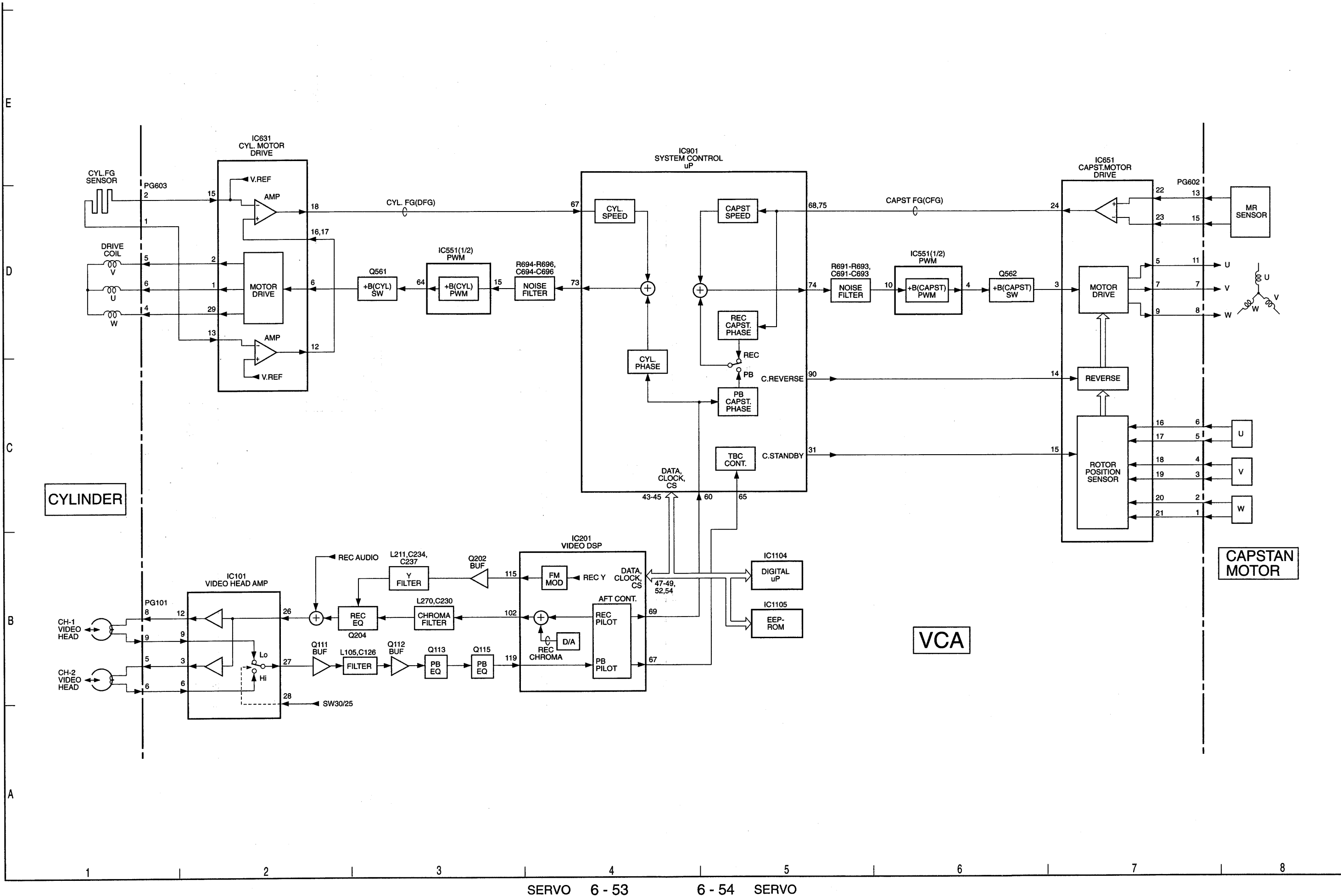
BLOCK DIAGRAMS
1. OVERALL BLOCK DIAGRAM



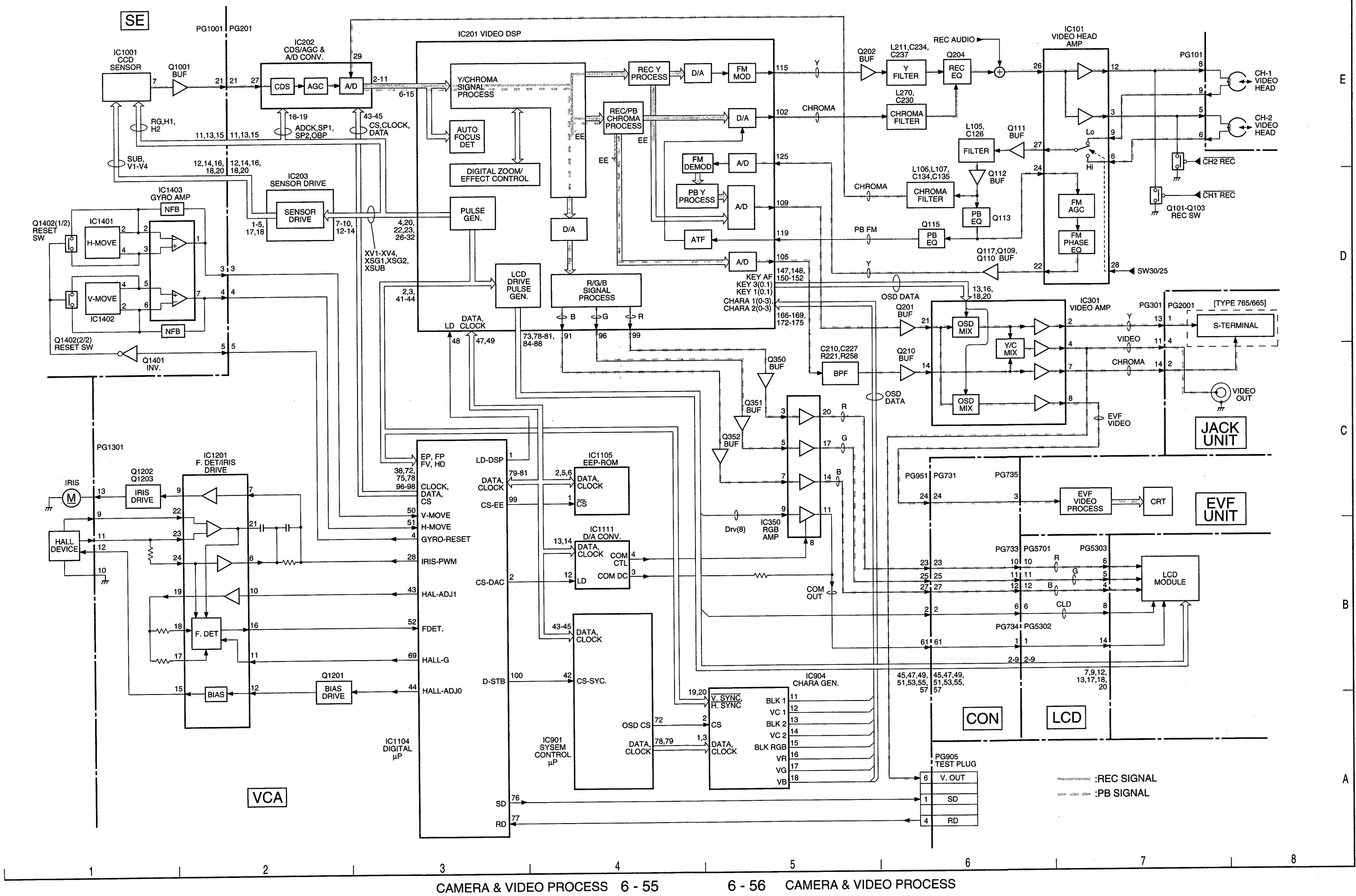
2. MAIN CONTROL BLOCK DIAGRAM



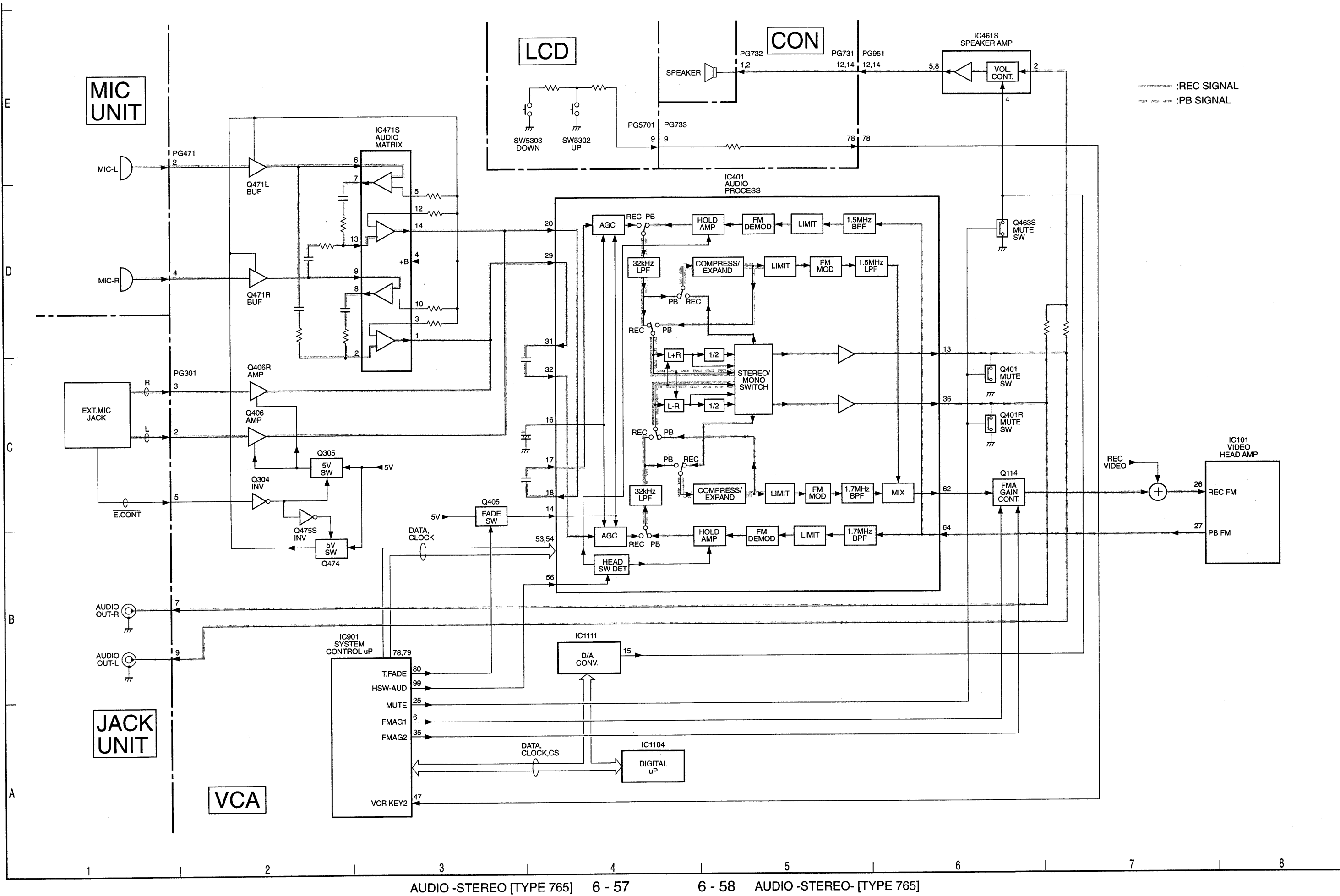
3. SERVO BLOCK DIAGRAM



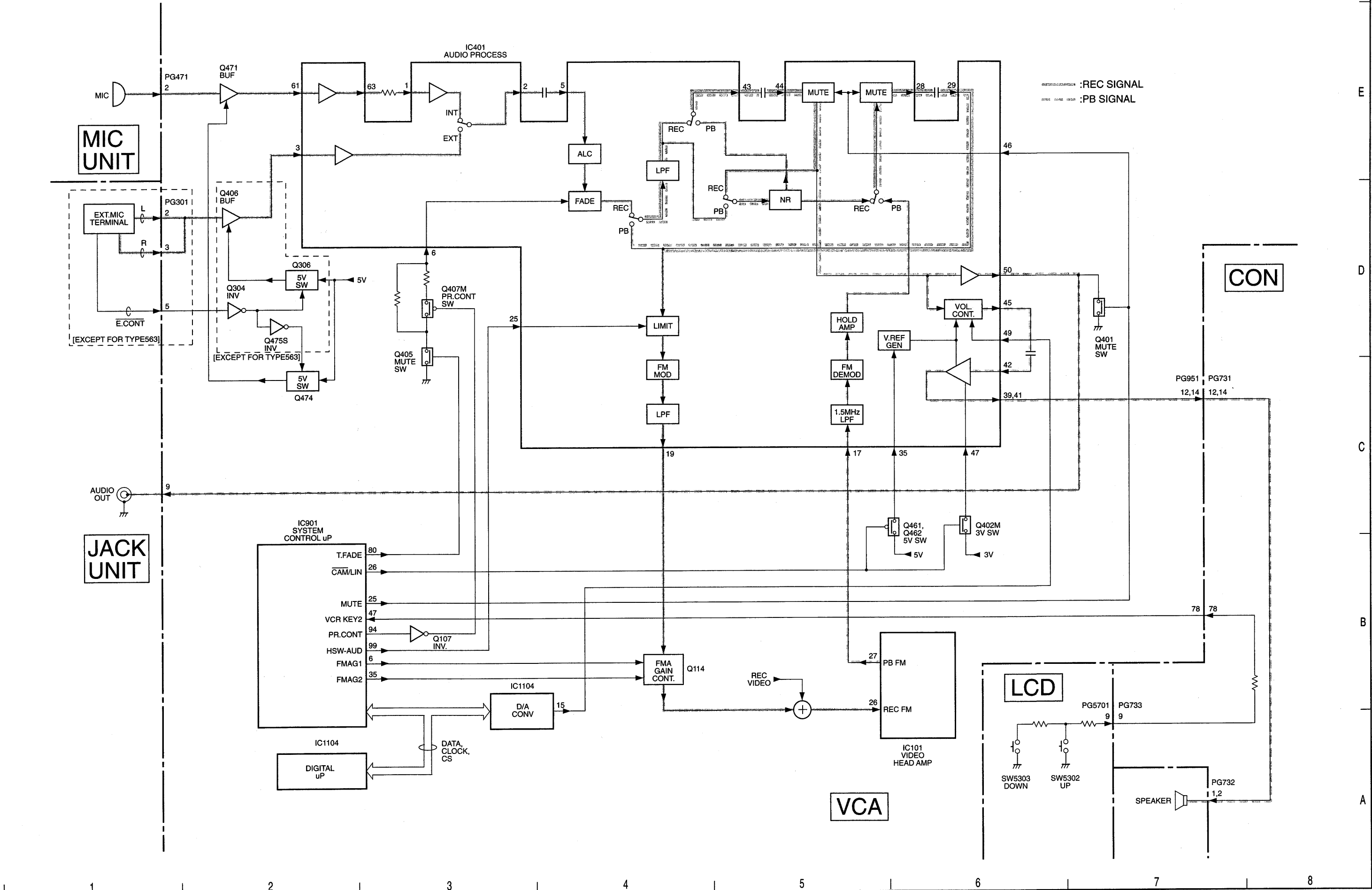
4. CAMERA & VIDEO PROCESS BLOCK DIAGRAM



5. AUDIO -STEREO- BLOCK DIAGRAM [TYPE 765]



6. AUDIO -MONAURAL- BLOCK DIAGRAM [TYPE 665/565/563]



A vertical scale with five horizontal tick marks. The marks are labeled A, B, C, D, and E from bottom to top.

MICROPROCESSOR PIN FUNCTION TABLES

1. Digital Microprocessor (IC1104: D-μP)

Pin No.	I/O	Active Level	Abbreviation	Function
1	O	(Pulse)	LD-DSP	Activates data communications with IC201 (VIDEO DSP).
2	O	(Pulse)	CS-DAC	Activates data communications with IC1111 (D/A CONV.).
3	-----	-----	-----	Not used. Open.
4	O	Hi	GYRO-RST	Drives Q1402 (GYRO RESET) via Q1401 (INV.) to reset IC1401 (V-MOVE) and IC1402 (H-MOVE).
5	-----	-----	CEON	Not used. Open.
6	-----	-----	CHARGE	Not used. Open.
7	I	Hi/Lo	LCD-OPEN	Input to discriminate whether of LCD monitor is opened or closed. Hi: Close, Lo: Open.
8	I	Hi/Lo	LCD-REV	Input to discriminate whether of LCD monitor is turned over.
9	O	Hi	LCD-ON	LCD power control output. Outputs "Hi" when power is turned on.
10	O	Hi	EVF-ON	Electronic viewfinder (EVF) power control output. Outputs "Hi" when power is turned on.
11	-----	-----	-----	Not used. Open.
12	-----	-----	VCC	3V power input.
13	I	Lo	BLC	BLC switch detection inputs.
14	-----	-----	GND	Ground.
15	I	Lo	CLOSS-U	Not used.
16	I	Lo	CLOSS-D	
17	I	Lo	CLOSS-L	
18	I	Lo	CLOSS-R	
19	I	Lo	ENTER	
20	-----	-----	-----	Not used. Open.
21	-----	-----	-----	
22	-----	-----	-----	
23	-----	-----	XTAL-CTL	
24	-----	-----	-----	
25	-----	-----	CHECK8	
26	O	Lo	TALLY LED	Drives LED701 (TALLY) via Q701 (TALLY DRIVE) to turn on during recording.
27	-----	-----	REM-CTRL	Not used. Open.
28	-----	(Pulse)	IRIS PWM	Iris motor drive output.
29	-----	-----	LD JIG	Not used. Open.
30	O	(Pulse)	ZDOEB MOTOR DRIVE)	Activates zoom drive data communications with IC1301 (FOCUS MOTOR/ZOOM MOTOR DRIVE).
31	O	(Pulse)	FOOEB	Activates focus drive data communications with IC1301 (FOCUS MOTOR/ZOOM MOTOR DRIVE).
32	O	(Pulse)	ZOOM-LED	Output pulses to drive the ZOOM LED in the lens block.
33	O	(Pulse)	FCUS-LED	Output pulses to drive the FOCUS LED in the lens block.
34	O	PWM	ZD-PWMB	Outputs zoom motor drive signal to IC1301 (FOCUS MOTOR/ZOOM MOTOR DRIVE).
35	O	PWM	ZD-PWMA	
36	O	PWM	RD-PWMB	Outputs focus motor drive signal to IC1301 (FOCUS MOTOR/ZOOM MOTOR DRIVE).
37	O	PWM	RD-PWMA	
38	I	(Pulse)	FV	Receives the vertical sync pulses that detect the iris detection area, from IC201 (VIDEO DSP).
39	I	(Pulse)	ZOM-SENS	Zoom motor position detection input.
40	I	(Pulse)	REM-IR	Not used. Connect to ground.
41	I	(Pulse)	FUS-SENS	Focus motor position detection input.
42	-----	-----	GND	Ground.
43	O	0V-5V	HAL-ADJ.1	Controls the offset voltage of IC1201 (F.DET/IRIS DRIVE).
44	O	0V-5V	HAL-ADJ0	Drives bias generator in IC1201 (F.DET/IRIS DRIVE) via Q1201 (BIAS DRIVE) to control the bias voltage of the Hall devices.
45	-----	-----	-----	Not used. Open.
46	I	0V-5V	ZOOM-SW	Zoom (TELE/WIDE) switch detection inputs.
47	I	0V-3V	KEY2	Not used.
48	I	0V-3V	KEY1	Operation switch detection input (FADE and D.EFFECTS switch)
49	I	0V-3V	TEMP-ADJ	Temperature change detection input. Detects variations in the forward voltage at the connected diode to correct the back-focus.
50	I	0V-3V	V-GYRO	Receives vertical camera shake correction data from IC1401 (V-MOVE) via IC1403 (GYRO AMP).

Pin No.	I/O	Active Level	Abbreviation	Function
51	I	0V-3V	H-GYRO	Receives horizontal camera shake correction data from IC1402 (H-MOVE) via IC1403 (GYRO AMP).
52	I	0V-3V	FDET	F-value detection input. Receives the F.DET voltage detected by IC1201 (F.DET/IRIS DRIVE) and compares this with the reference voltage input via pin 53 to detect the F-value.
53	----	----	AVCC	Reference 3V power input.
54	----	----	AVCC	A/D reference voltage input (connected to 3V power supply).
55	----	----	VCC	3V power input.
56	----	----	VCC	
57	----	----	-----	Not used. Open.
58	----	----	-----	
59	I	Lo	SYS-REST	Reset signal input from IC901 (S-μP).
60	----	----	VCC	3V power input.
61	----	----	STBY	Not used. Connect to 3V power supply.
62	----	----	VCC	3V power input.
63	----	----	-----	Not used. Open.
64	----	----	GND	Grounded.
65	I	(Pulse)	SYS-CLOCK	Inputs control clock pulses from IC201 (VIDEO DIGITAL PROCESS).
66	----	----	-----	Not used. Connect to 3V power supply.
67	----	----	VCC	3V power input.
68	----	----	-----	Not used. Open.
69	O	Hi	HALL-G	Controls the amplification (gain of Hall device) of IC1201 (F.DET/IRIS DRIVE).
70	----	----	-----	Not used. Open.
71	----	----	-----	
72	I	(Pulse)	HD	Input horizontal sync pulse from IC201 (VIDEO DIGITAL PROCESS).
73	----	----	SHUT-CTL	Not used. Open.
74	----	----	STROBE	
75	I	(Pulse)	FP	Input field discrimination pulse from IC201 (VIDEO DIGITAL PROCESS).
76	O	(Pulse)	SD (232C)	Used for initial settings and adjustment. For data communications with personal computer.
77	I	(Pulse)	RD (232C)	
78	I	(Pulse)	EP3/AFLH	Receives pulses which discriminate the iris detection area.
79	O	(Pulse)	SDO	For data communications with IC201 (VIDEO DSP), IC1105 (EEP-ROM), IC901 (SYSTEM CONTROL μP) and IC1111 (D/A CONV.).
80	I	(Pulse)	SDI	
81	O	(Pulse)	SCLK	
82	----	----	-----	Not used. Open.
83	----	----	-----	
84	----	----	-----	
85	----	----	-----	
86	I	Hi	DCL-AUTO	Input to detect the AUTO position of DC light switch. If IC1104 detects the AUTO position (Hi), it switches the voltage at pin 94 according to the surrounding brightness.
87	----	----	-----	Not used. Open.
88	----	----	-----	Not used. Connected to ground.
89	----	----	LIGHT-SW	Input to detect the ON position of DC light switch. If IC1104 detects the ON position (Hi), it sets the voltage at pin 94 to "Hi".
90	I	Hi	PB-HIBAD	Playback mode detection input. IC1104 receives the playback mode detection signal sensed by IC201 (VIDEO DSP) and instructs IC904 (CHARA. GEN.) to generate the display signals and also transfers the operation mode data to IC201. Open for models with which only normal tapes are used.
91	----	----	-----	Not used. Open.
92	I	Lo	NEAR-SW	Manual focus switch (FOCUS-N/FOCUS-F) detection inputs.
93	I	Lo	FAR-SW	
94	----	----	LIGHT-ON	DC light power control output. This outputs "Hi" according to the voltage input to pin 86 or 89, and drive Q570 and Q571 to turn the DC light on.
95	----	----	SCRN-ON	Not used. Open.
96	O	(Pulse)	CLK-CDS	Transfer data to IC202 (CDS/AGC & A/D CONV.).
97	O	(Pulse)	SDO-CDS	
98	O	(Pulse)	CS-CDS	Activates data communications with IC202 (CDS/AGC & A/D CONV.).
99	O	(Pulse)	CS-EE	Activates data communications with IC1105 (EEP-ROM).
100	O	(Pulse)	CS-SYS	Activates data communications with IC901 (SYSTEM CONTROL μP).

2. System Control Microprocessor (IC901: S-μP)

Pin No.	I/O	Active Level	Abbreviation	Function
1	O	Lo	CH2. REC[Lo]	Output the signals to select the video heads for recording.
2	O	Lo	CH1. REC[Lo]	Go "Lo" in the corresponding channel period during recording.
3	O	(Pulse)	SW30[Lo]	Antiphase head switching pulse output.
4	O	(Pulse)	SW30(SW25)	Head switching pulse output.
5	I	Hi	TEST/NOR[Lo]	Test program start detection input. A test program is executed when "Hi" is input.
6	O	Hi	FMAG1	Q114 (FM AGC) control outputs. Q114 aligns the REC AUDIO signal (FMA) level with the REC VIDEO signal level that varies.
35	O	Hi	FMAG2	
7	I	Hi	ADP DET	AC adapter connection detection input.
8	I	Hi/Lo	PRE V	Lithium battery attachment and voltage detection input. (Not attached or less than 2.5V: Hi, Attached: Lo)
9	I	Lo	EXT BATT	Battery attachment detection input.
10	I	0V-3V	M-SW2	Mechanism state switch position (mode) detection input.
11	I	0V-3V	M-SW1	
12	I	0V-3V	M-SW0	
13	I	Lo	CAM SW[Lo]	Power switch detection input. "Lo" is input during recording (CAMERA mode).
14	I	Lo	VCR SW[Lo]	Power switch detection input. "Lo" is input during playback (PLAY mode).
15	I	Lo	EJECT SW[Lo]	Eject switch detection input. When "Lo" is input, the camera/recorder performs the eject operation even when the power is turned off (standby release input).
16	I	Lo	STAGE[Lo]	Cassette holder open/close detection input. "Lo" is input when the cassette holder is closed.
17	I	Hi/Lo	ME/MP[Lo]	Input to discriminate the type of tape. Hi: ME (metal evaporated) tape, Lo: MP (metal particle) tape.
18	I	Lo	WAKE UP[Lo]	Standby release input. When the camera power is turned on, "Lo" is input to release the standby mode. IC901 detects the inputs of each switch to start operation.
19	I	Lo	REC START[Lo]	Recording start/stop switch detection input.
20	-----	-----	-----	Not used. Open.
21	O	Hi	CHARGE CONT	Controls IC553 (5V REG) to generate autofocus and charge circuits power supply 5V(AF).
22	O	Hi	INIT CHG	Charge mode control output. Outputs "Hi" when the voltage of the attached battery is 5.8V or less, to set the camcorder to the initial charge mode.
23	O	Hi	CHG LED	Outputs "Hi" during charging to control Q732 (CHG LED DRIVE) so that the CHARGE LED (LED751) lights.
24	-----	-----	-----	Not used.
25	O	Hi	MUTE	Audio muting output. Outputs "Hi" to mute sound.
26	O	Hi/Lo	CAM[Lo]/LINE	Video processor mode control output. Outputs "Lo" during camera recording and "Hi" with an external (line) signal.
27	O	(Pulse)	END LED	End LED drive output. Outputs pulses of approx. 50Hz when power is turned on.
28	O	Hi	VCR ON	Power control output. Outputs "Hi" when power is turned on.
29	O	Lo	CAM+OSD RESET[Lo]	Outputs "Lo" with power on and is set to open with power off to initialize IC1104 (DIGITAL μP) and IC904 (CHARA. GEN.).
30	O	(Pulse)	CEVF-CS	Not used.
31	O	Hi	C.STANDBY	Capstan motor power control output.
32	O	Hi/Lo	ZONE. OFF	Not used.
33	O	Hi	Hi-8 ET	Not used.
34	O	Lo	DSP RESET [Lo]	Outputs "Lo" with power on and is set to open with power off to initialize IC201 (VIDEO DSP).
36	-----	-----	-----	Not used. Open.
37	-----	-----	GND	Grounded.
38	I	Lo	SYSTEM RESET[Lo]	Microprocessor reset input. "Lo" input resets the microprocessor.
39	-----	-----	GND	Grounded.
40	O	(Pulse)	XTAL OUT 12MHz	Drive X901 to generate 12MHz main clock pulses.
41	I	(Pulse)	EXTAL IN 12MHz	

Pin No.	I/O	Active Level	Abbreviation	Function
42	I	(Pulse)	CS-SYC(CAM)	Activates data communications with IC1104 (DIGITAL μ P).
43	I	(Pulse)	C-S DATA(CAM)	For data communications with IC201 (VIDEO DSP), IC1105 (EEP-ROM), IC1104 (DIGITAL μ P) and IC1111 (D/A CONV.).
44	O	(Pulse)	S-C DATA(CAM)	
45	I	(Pulse)	C LOCK(CAM)	
46	I	0V-3V	OVER-C	Overcurrent detection input during charging. Changes the gain during charging to monitor the charge current.
47	I	0V-3V	VCR KEY2	VCR operation switch detection input (PLAY, DATE, TITLE and MUTE etc.).
48	I	0V-3V	CHARGE C	Charge current detection input. Monitors the charge current during charging.
49	I	0V-3V	BATTERY	Input to detect the battery remaining level.
50	----	----	GND	Grounded.
51	I	----	AVref	Reference voltage input. Connect to 3V line.
52	----	----	AVdd	3V power input.
53	I	Hi/Lo	CASSETTE-SW	Erase prevention tab and Hi-8/Normal of the cassette detection input.
54	I	0V-3V	+B VDET	Battery voltage detection input. Monitors the attached battery voltage.
55	I	Lo	EXT MIC	External microphone connect detection input.
56	I	0V-3V	VCR KEY1	VCR operation switch detection input (REW, F.FWD and STOP).
57	I	0V-3V	TRACK ADJ.	For the connection of a tracking control for adjustment. When an ATF-R jig is connected to PG601 (test plug), the variable resistor on the ATF-R jig can be used as a tracking control.
58	I	(Pulse)	EST	Take-up tape end detection input.
59	I	(Pulse)	ESS	Supply tape end detection input.
60	I	(Pulse)	ENV DET	Playback (PB) FM signal input.
61	I	(Pulse)	RSS	Supply/take-up reel sensor inputs. Used to calculate the remaining tape and to detect reel lock.
62	I	(Pulse)	RST	
63	----	----	GND	Grounded.
64	I	(Pulse)	C.SYNC	Composite sync signal input. The separated vertical sync signal is divided by two to generate the 1/2V.SYNC pulse which is used to control the cylinder speed during recording (reference signal).
65	I	(Pulse)	TBC CONT	Cylinder phase control signal input.
66	----	----	GND	Grounded.
67	I	(Pulse)	DFG	Cylinder FG (CYL. FG) pulse input. Controls the cylinder speed during recording and playback.
68	I	(Pulse)	CFG	Capstan FG (CAPST.FG) pulse input. Controls the capstan speed and used for counting of the linear time counter and recording restart control (assemble recording).
75	I	(Pulse)	CFG	
69	O	Hi	LOAD	Loading motor drive outputs.
70	O	Hi	UNLOAD	
71	O	Hi	CHARGE	Charge circuit control output. Outputs "Hi" during charging to activate the charge circuit.
72	O	(Pulse)	OSD CS	Activates communications with IC904 (CHARA. GEN.).
73	O	PWM	D.SPEED	Cylinder servo control outputs.
74	O	PWM	C.SPEED	Capstan servo control outputs.
76	I	Lo	V-DET[Lo]	Inputs whether a battery is attached or not. "Lo" is input when the battery is detached, to shift the microprocessor to the backup mode in which the data is saved.
77	I	Hi	DC900DET	Not used.
78	O	(Pulse)	D. OUT	For data communications with IC904 (CHARA. GEN.) and IC401 (AUDIO PROCESS (For stereo type)).
79	O	(Pulse)	CLOCK	
80	O	Hi	T.FADE	Rapid audio fading output. Outputs "Hi" when fading is started to fade the audio signal in rapidly.
81	I	Hi/Lo	BATT. SERIAL	Battery serial time detection input.
82	----	----	-----	Not used. Open.
83	I	(Pulse)	REMOCON	Remote operation signal input from the infrared receiver.
84	I	(Pulse)	32MHz TEX IN	Generate 32kHz sub-clock pulses.
85	O	(Pulse)	32MHz TX OUT	
86	----	----	GND	Ground.
87	----	----	Vdd	3V power input.
88	----	----	-----	Not used. Connected to 3V line.
89	----	----	-----	Not used. Open
90	O	Hi	C.REVERSE	Capstan motor reversing control output.

Pin No.	I/O	Active Level	Abbreviation	Function
91	O	Hi	REC	Output to control the video processor during recording.
92	O	Hi/Lo	PB	Output to control the video processor mode. Goes "Hi" during playback.
93	O	Hi	D.STANDBY	Cylinder motor start auxiliary output. Outputs "Hi" for 50 ms when the motor is started in the forward rotation direction.
94	O	Lo	PR.CONT	Preamplifier activation signal. Outputs "Hi" during playback to activate the preamp.
95	O	(Pulse)	HD	Artificial H. sync signal output.
96	O	(Pulse)	ADDV+ SQUELCH	Artificial V. sync signal + video muting signal output.
97	O	Hi/Lo	WIPE CONT	Output to select the display mode (normal or 16x9 (wide vision)).
98	O	Hi/Lo	LCD-HOLD	Controls the LCD control circuit operation mode.
99	O	(Pulse)	AUDIO30(25)	Outputs switching pulses to IC401 (AUDIO PROCESS).
100	O	Hi	FE CONT	Flying erase head oscillation control output .

1. SELF-DIAGNOSTIC FUNCTION

1.1 Overview

The camera/recorder has the following self-diagnostic function.

- Occasional defect self-diagnostic function (A mode)
- Mechanical block self-diagnostic function (B mode)

Fig. 1-1 shows the self-diagnostic coverage range. The self-diagnostic functions of the camera/recorder are engaged by the system control (S) μ P (IC0901) which detects, memorizes and displays data related to defects in the mechanical block control system.

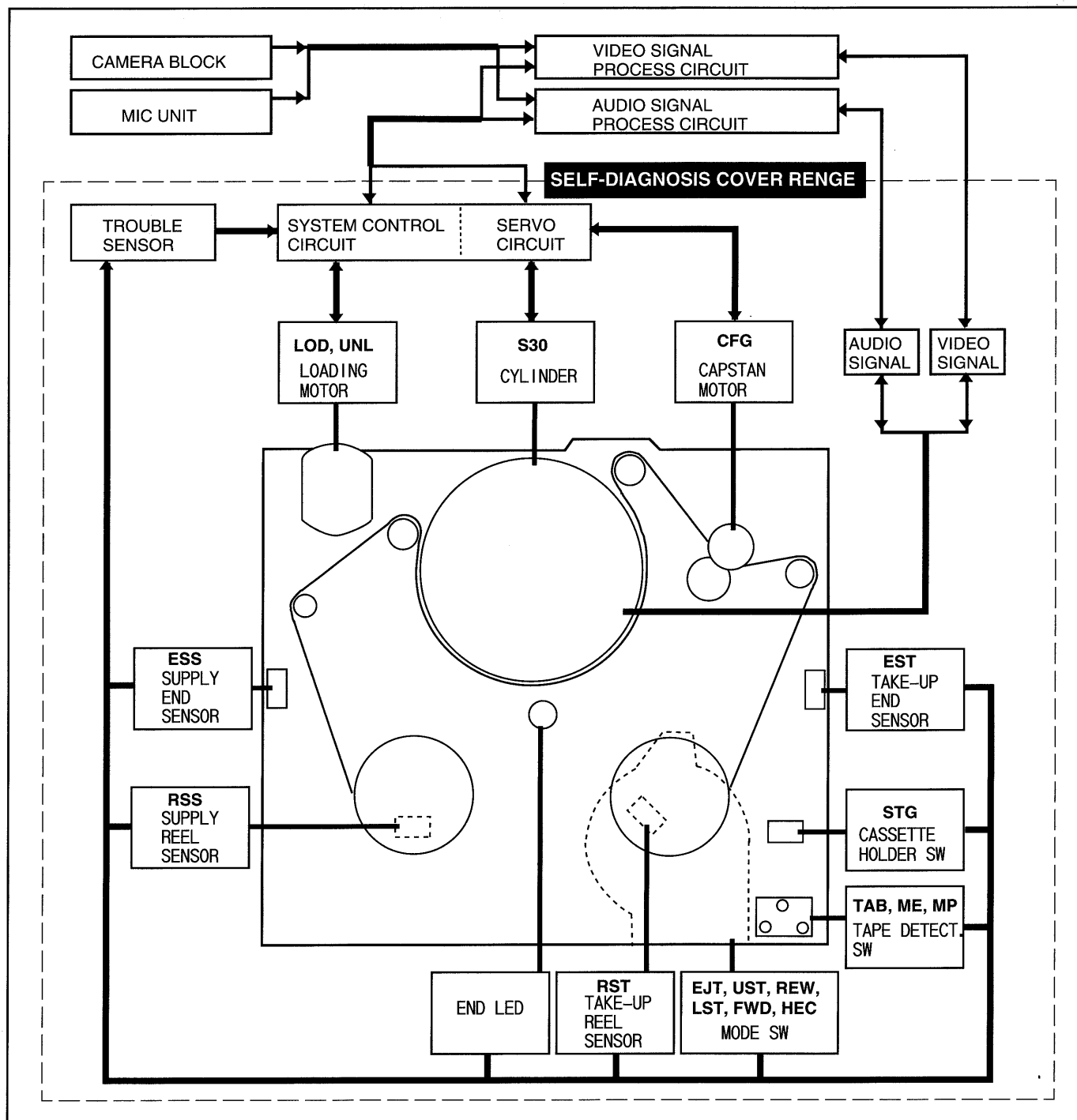


Fig. 1-1 Self-Diagnostic Coverage Range

1.2 Details of Display/Detection and Applications

Table 1-1 summarizes the details of display/detection of the self-diagnostic functions and their applications.

Fig. 1-2 shows the operational processes of the self-diagnostic functions.

Table 1-1 Details of Display/Detection of Self-Diagnostic Functions and their Applications

	Occasional defect self-diagnostic function (A mode)	Mechanical block self-diagnostic function (B mode)
Details of display/detection	The system control μ P memorizes and displays the defect data. (If several defects have occurred, only the last defect detected is memorized.)	Displays the data for the defect that has occurred when the B mode is set.
Application	Used when the defective symptom is not reproduced during servicing.	Used to detect the cause of the defect (in the mechanical block or electrical circuits) and to determine the defective position of the mechanical block.
Detected parts	Trouble sensors • Take-up end sensor (EST) • Supply end sensor (ESS) • Take-up reel sensor (RST) • Supply reel sensor (RSS) Cylinder (S30) Capstan motor (CFG)	Trouble sensors • Take-up end sensor (EST) • Supply end sensor (ESS) • Take-up reel sensor (RST) • Supply reel sensor (RSS) Cylinder (S30) Capstan motor (CFG) Loading motor (LOD, UNL) Mechanism mode switch (EJT, UST, REW, LST, FWD, HEC) Tape detection switches, etc. • Erase prevention tab detection switch (TAB) • ME/MP detection switch (ME) • Hi-8 MP detection switch (MP) • Cassette holder switch (STG)
Cautions	When the rewind mode is entered, the defect data is erased.	Engage the B mode after completing the A mode. If the B mode is engaged first, the defect data may be erased.

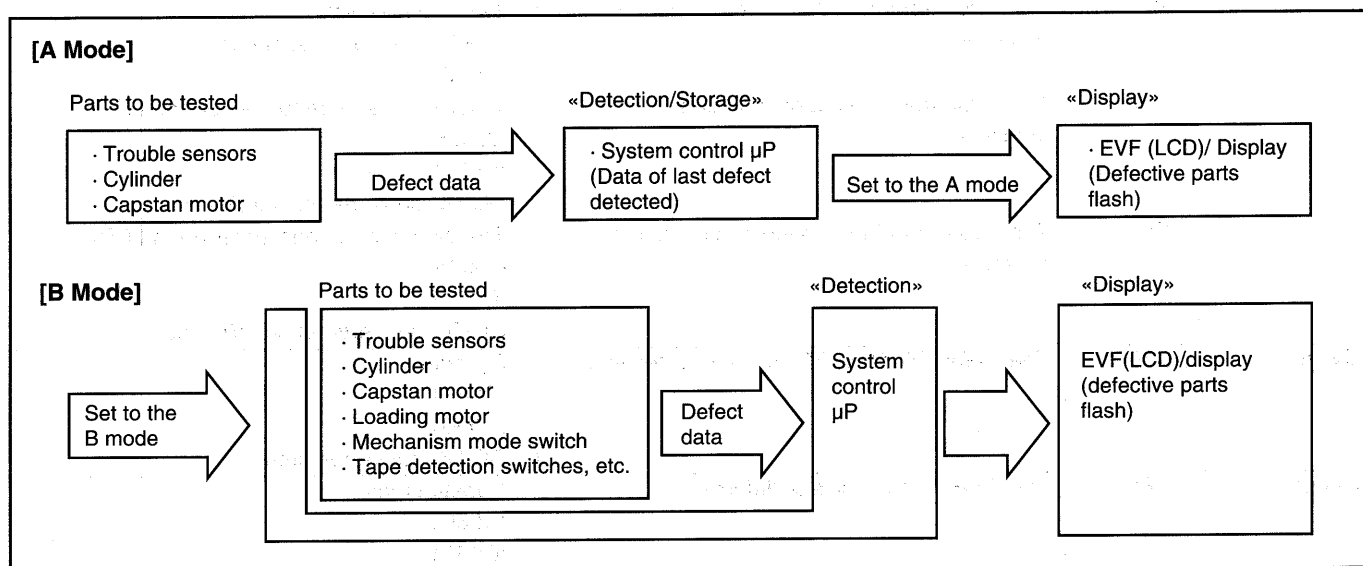


Fig. 1-2 Operation Processes of Self-Diagnostic Functions

1.3 Setting Procedure and Details of Diagnosis

1.3.1 Occasional Defect Self-Diagnostic Function (A Mode)

(1) Setting Procedure

- 1) Connect (attach) a power supply (battery).
- 2) Set the CAM/OFF/VIDEO switch to "VIDEO".
- 3) Press the DATE button. [Within half a second]
- 4) Press the DATE and REW buttons simultaneously and hold them for 3-5 seconds.

xx,x <xx> 199x/xx/xx

LOD	EJT	UNL
RSS	UST	RST
ESS	REW	EST
CFG	LST	S30
TAB	FWD	STG
ME	HEC	MP

0123456789ABCDEF

H: 0000000002001000

L: 110111180100BD00

0000

xxx/xxx

AUDD140

«Results of self-diagnosis»

- The shaded items flash if they are defective.
- See Table 1-2 for the results of diagnosis.

Cautions:

- Do not press any buttons other than those specified during self-diagnosis; otherwise, it may cause a malfunction.
- Only the shaded items are tested in the A mode.
- Other items are ignored.

[To release]

- Set the CAM/OFF/VIDEO switch to "OFF".
- Press the DATE and REW buttons simultaneously.

(2) Results of Diagnosis

Table 1-2 summarizes the results of diagnosis and the circuits/parts deemed to be defective in the A mode.

Table 1-2 Details of A Mode Self-Diagnosis

Part	Display	Results of diagnosis	Parts/circuits deemed to be defective
Trouble sensors	RSS	The pulse from the supply reel sensor is defective.	Supply reel disk Trouble sensor (reel sensor) IC0901
	RST	The pulse from the take-up reel sensor is defective.	Take-up reel disk Trouble sensor (reel sensor) IC0901
	ESS	The pulse from the supply end sensor is defective.	Trouble sensors (end sensor/end LED) Q0905 IC0901 DC-DC converter circuit (B+ line)
	EST	The pulse from the take-up end sensor is defective.	Trouble sensors (end sensor/end LED) Q0905 IC0901 DC-DC converter circuit (B+ line)
Cylinder	S30	The SW30/25 (CYL. FG) pulse is defective.	Cylinder IC0631 IC0901 DC-DC converter circuit
Capstan	CFG	The CAPST. FG pulse is defective.	Capstan motor IC0651 IC0901 DC-DC converter circuit

1.3.2 Mechanical Block Self-Diagnostic Function (B Mode)

Caution: Complete the A mode before engaging the B mode.

(1) Setting Procedure

- 1) Connect (attach) a power supply (battery).
- 2) Press the EJECT switch to set to the eject state.
- 3) Press the "Hi-8 MP" switch on the trouble sensor and the DATE button and hold them, then set the CAM/OFF/VIDEO switch to "VIDEO" (Hold this state for a few seconds.) [Within 3 seconds].
- 4) Close the cassette lid.

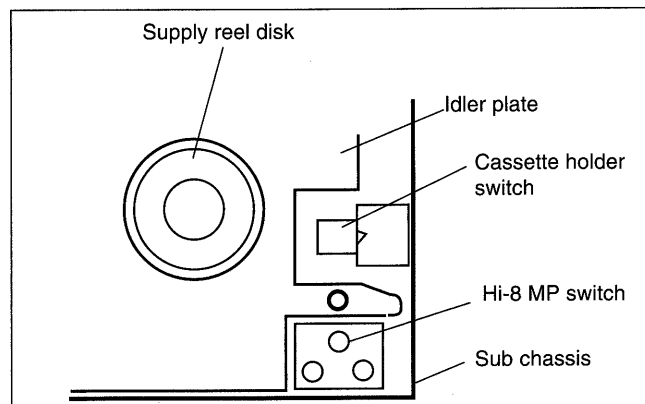


Fig.1-3 Hi-8 MP Switch Position

xx,x <xx.xx> 199x/xx/xx

LOD	EJT	UNL
RSS	UST	RST
ESS	REW	EST
CFG	LST	S30
TAB	FWD	STG
ME	HEC	MP

0000

0123456789ABCDEF

H: 0000000002001000

L: 110111180100BD00

xxx/xxx

AUDD140

«Results of self-diagnosis»

- The defective items flash.
- The shaded items are the tape detection switches and cassette holder switch which flash when they are not pressed.
- See Table 1-3 for the results of diagnosis.

Cautions:

- Do not press any buttons other than those specified during self-diagnosis; otherwise, it may cause a malfunction.
- The indications in dotted lines are not covered by the self-diagnostic functions.
- It is normal for the diagnostic procedure to end in the eject state. Do not close the cassette lid thereafter.

[To release]

- Set the CAM/OFF/VIDEO switch to "OFF".

5) The procedure ends in the eject state.

Caution: Do not close the cassette lid.

(2) Results of diagnosis

Table 1-3 summarizes the results of diagnosis and the circuits/parts deemed to be defective in the B mode.

Table 1-3 Results of B Mode Self-Diagnosis (1/2)

Part	Display	Results of diagnosis (Detect display conditions)	Parts/circuits deemed to be defective
Loading motor	LOD	The loading motor is defective when running forward. (Does not load within 10 seconds.)	Loading motor Rotation of drive gears in mechanical block faulty. IC0671 IC0901 IC0902 Power supply (5V, B+) lines.
	UNL	The loading motor is defective when running in reverse. (Does not unload within 10 seconds.)	
Trouble sensors	RSS	The pulse from the supply reel sensor is defective. (There is one pulse or less within two seconds.)	Supply reel disk Trouble sensor (reel sensor) Capstan motor IC0901

Table 1-3 Results of B Mode Self-Diagnosis (2/2)

Part	Display	Results of diagnosis (Detect display conditions)	Parts/circuits deemed to be defective
Trouble sensor	RST	The pulse from the take-up reel sensor is defective. (There is one pulse or less within two seconds.)	Take-up reel disk Trouble sensor (reel sensor) Capstan motor IC0901
	ESS	The pulse from the supply end sensor is defective. (No pulse is input for more than 100 ms continuously within two seconds.)	Trouble sensors (end sensor/end LED) Q0905 IC0901 DC-DC converter circuit (B+ line)
	EST	The pulse from the take-up end sensor is defective. (No pulse is input for more than 100 ms continuously within two seconds.)	Trouble sensors (end sensor/end LED) Q0905 IC0901 DC-DC converter circuit (B+ line)
Tape detection switches, etc.	TAB	The erase prevention tab detection switch detects the record inhibit state (OFF).	Caution: These switches flash when they are not pressed. It is abnormal if they flash when pressed. Trouble sensor IC0901
	ME	The ME/MP tape detection switch detects the MP state (OFF).	
	MP	The Hi-8 MP tape detection switch detects the normal MP state (OFF).	
	STG	The cassette holder switch detects the state where the cassette holder is not lowered (OFF).	
Capstan motor	CFG	The CAPST. FG pulse is defective. (150 pulses or less within two seconds.)	Capstan motor IC0651 IC0901 DC-DC converter circuit
Cylinder	S30	The SW30/25 (CYL. FG) pulse is defective. (No pulse is input normally within two seconds.)	Cylinder IC0631 IC0901 DC-DC converter circuit
Mechanism mode switch	UST	The unloading stop position detection signal is defective.	Caution: The positions shown on the left are detected in the order described within 10 seconds. Mechanism mode switch Trouble sensor IC0901 Defective rotation/phase of drive gears in mechanical block. Loading motor. Tape transport components. Guide roller rails DC-DC converter circuit.
	REW	The rewind position detection signal is defective.	
	LST	The loading stop position detection signal is defective.	
	FWD	The play or fast forward position detection signal is defective.	
	HEC	Between the fast forward position and unloading stop position detection signal is defective.	
	EJT	The eject position detection signal is defective.	

2. DEMONSTRATION (DEMO) MODE

This camera/recorder is equipped with a demonstration mode in which the incorporated functions are automatically switched and displayed.

Caution:

The camera/recorder does not accept functions (operations) other than those shown below:

- EJECT
- Setting CAM/OFF/VIDEO switch to OFF

- 2) When "DEMO AUTO" is specified using the menu, set the CAM/OFF/VIDEO switch from OFF to CAM while holding down the PLAY button, with all the following conditions satisfied:

- Cassette tape not inserted
- STANDBY/LOCK switch set to STANDBY

- 3) Specify "DEMO START" using the menu with a cassette not inserted, and then release the menu.

Note: "DEMO START" cannot be specified when a cassette is in the camera/recorder.

2.1 Setting the Demo Mode

Attach a power supply (battery) and choose one of the following procedures:

- 1) When "DEMO AUTO" is specified using menu, leave the camera/recorder for approx. 10 minutes with all the following conditions satisfied:
 - Date not set
 - Cassette tape not inserted
 - In the camera recording mode

2.2 Exiting the Demo Mode

Perform one of the following procedures to exit the demo mode:

- 1) CAM/OFF/VIDEO switch to OFF or remove the power supply.
- 2) Load a cassette.

2.3 Contents of Demonstration

The following table shows the examples of display/operation contents in the demo mode:

The display/operation in the demo mode will vary, depending on the model (equipped functions provided or not).

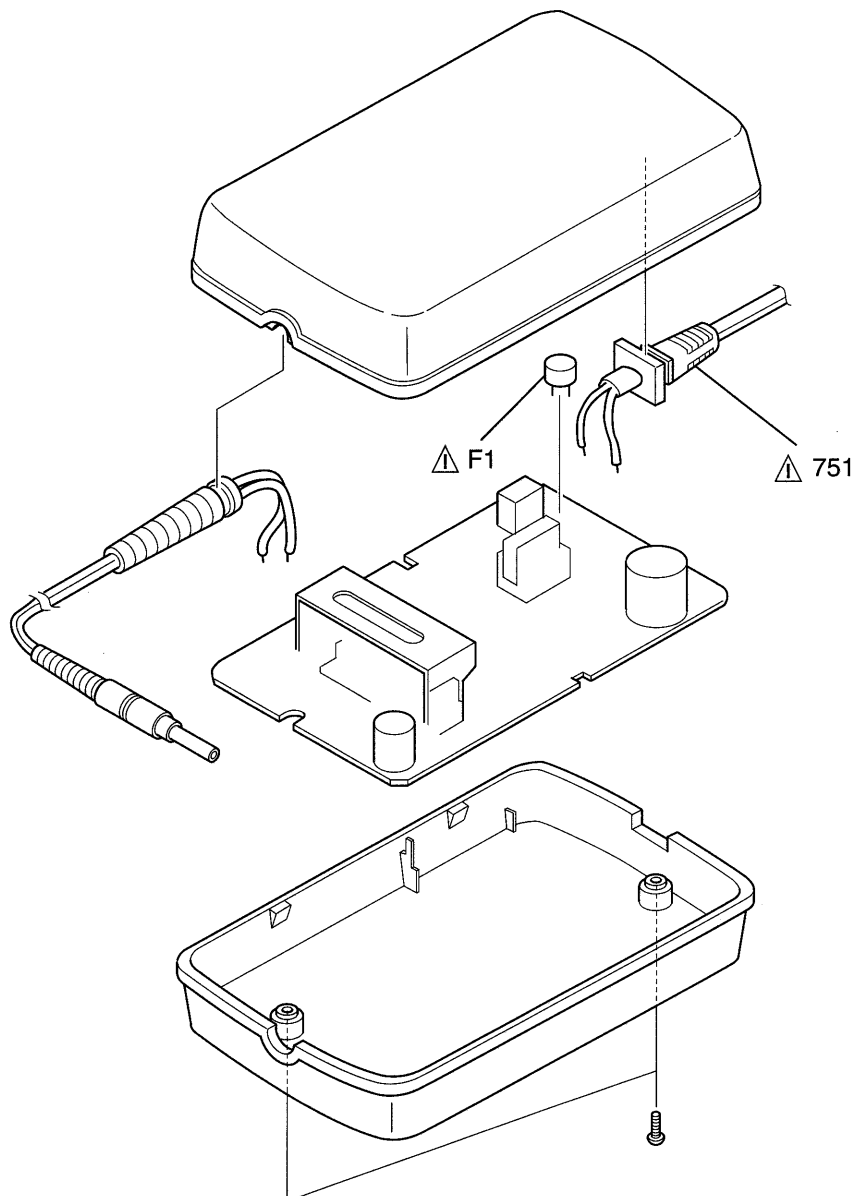
No.	Item	Display content, example of display	Display time	Remarks
1	Start of demo	All display off.	For approx. 4 s	
2	Display of model name		-----	
3	WELCOME display	WELCOME TO HITACHI DIGITAL DEMONSTRATION	-----	
4	Introduction of functions	HQ D.ZOOM/7-MODE EFFECTS/TBC/ CNR/7-COLOR TITLES/EDGE CLEAN/ 6-MODE FADER/2.5" LCD/EIS/ PROGRAM AE	-----	Varies, depending on the model.
5	EIS simulation	EIS OFF: Electronic zoom operation, vertical picture shaking is considerable. EIS ON: Electronic zoom operation, vertical picture shaking is negligible.	For approx. 3 s For approx. 3 s	Only for models with EIS function.
6	HQ DIGITAL ZOOM demonstration	Rapidly changing from wide to tele in digital zoom area. Rapidly changing from tele to wide in digital zoom area.	For approx. 3 s For approx. 3 s	Performed twice.
7	6-MODE FADE demonstration	White Fade: In - Stop - Out Wipe Fade: In - Stop - Out Mosaic Fade: In - Stop - Out Art Fade: In - Stop - Out Zoom Fade: In - Stop - Out Black & White Fade: In - Stop - out	-----	Each stop time is for approx. 1 s.

No.	Item	Display content, example of display	Display time	Remarks
8	7-MODE EFFECTS demonstration	16 × 9 picture Negative picture Half -mirror picture Mosaic picture Art picture Sepia color picture No color (black & white) picture	For approx. 3 s each	
9	TBC simulation	TBC OFF: Electronic zoom operation, horizontal picture shaking is negligible. TBC ON: Normal picture (horizontal shaking stops.	For approx. 3 s For approx. 3 s	Performed twice.
10	User registered title demonstration	TITLE DEMO	-----	
11	7-COLOR TITLES demonstration	Preset titles appear in sequence. The display is returned to the first title, and then its color is changed.	For approx. 1 s each For approx. 1 s each	Colors change from white to yellow, cyan, magenta, red, green, and back to white in sequence.
12	Returning to 1.			

Memo

EXPLODED VIEW & REPLACEMENT PARTS LIST

SYMBOL-NO	P-NO	DESCRIPTION
⚠ 751	EV10671	CORD, AC
⚠ F1	FN10261R	FUSE 1.6A



E

D

C

Ca

A

HITACHI

VM-H765LA/H665LA
VM-E565LA/E563LA
VM-ACE5A

TK No.6908E

Digital Media Products Division, Tokai